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# NEW YORK CITY'S HEALTH

1957 1958

DEPARTMENT OF HEALTH · CITY OF NEW YORK

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# REPORT

of the

# DEPARTMENT OF HEALTH

## THE CITY OF NEW YORK

for the years

1957 -- 1958

LEONA BAUMGARTNER, M.D.

*Commissioner of Health*

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**THE COMMISSIONER OF HEALTH**
**CITY OF NEW YORK**
**125 Worth Street**
**New York 13, N. Y.**

August 18, 1959

Hon. Robert F. Wagner
Mayor of the City of New York
City Hall
New York 7, N. Y.

Dear Mayor Wagner:

I am happy to submit to you this report of the Health Department for the years 1957-58. The Department is again issuing a biennial report. Reports always pose something of a problem. For this reason the Department has concluded that it will continue experiments with different kinds of reports. The one we put out for the years 1955-56 was directed, as this one is, to telling the story of successes and failures and some of what lies ahead, in language which both laymen and scientists may understand, but emphasizing material that will be informative to persons with a serious interest in public health.

This report does not cover everything; it omits a great deal—materials which are in the annual reports of the Department's separate bureaus and are reflected in the statistical summaries filed in the Municipal Reference Library.

In a separate section I have tried to outline some of the highlights as I see them.

Your establishment of a Health Research Council late in 1958 was not only of high importance to the Department of Health; it was also a highly significant development in medicine and public health in this country. I consider establishment of this Council, which is empowered to study the whole health and medical research set-up in our community, as one of the most important steps taken in many, many years in the fight against diseases and disability.

I have reason to believe that you will be as proud of the accomplishments reported here as thousands of New Yorkers tell us they are. The achievements have been made possible by the hard work of many New Yorkers—those in the City's service and those out. We appreciate too the understanding and support which you and members of the Board of Estimate have given these efforts. Without this support, of course, the work would not have been possible at all.

Sincerely,
Leona Baumgartner, M.D.
Commissioner of Health

## THE BOARD OF HEALTH

*and the*

## Executive Staff

*of*

## THE DEPARTMENT OF HEALTH

*of*

## THE CITY OF NEW YORK

### The Board of Health

| | |
|---|---|
| *Chairman* | The Commissioner of Health |
| | Chester I. Barnard (appointed October, 1957) |
| *Members* | Haven Emerson, M.D. (died May, 1957) |
| | Paul R. Hays, LL.D. |
| | Samuel Z. Levine, M.D. |
| | Thomas M. Rivers (resigned January, 1957) |
| | Lewis Thomas, M.D. (appointed January, 1957) |
| *Secretary* | The Secretary of the Department |

### The Department of Health

| | |
|---|---|
| *Commissioner* | Leona Baumgartner, M.D. |
| *Deputy Commissioners* | Roscoe P. Kandle, M.D. |
| | George James, M.D. |
| *Assistant Commissioners* | |
| *Administrative Services* | Lester J. Rosner, M.A., LL.B. |
| *Maternal and Child Health Services* | Harold Jacobziner, M.D. |
| *Preventable Disease and Adult Hygiene Services* | Theodore Rosenthal, M.D. |
| *Environmental Sanitation Services* | Jerome Trichter |

## Directors

*Adult Hygiene* ..... Abraham Oppenheim, M.D.
*Audit and Accounts* ..... John J. Tormey
*Child Health* ..... Vacant
*Dentistry* ..... Arthur Bushel, D.D.S.
*District Health Service* ..... Michael Antell, M.D.
*Food and Drugs* ..... Edwin Ludewig, B.S.
*Handicapped Children* ..... Margaret A. Losty, R.N. (acting)
*Laboratories* ..... John F. Mahoney, M.D.
(died February, 1957)
Gustav Steffen, Ph.D. (acting)
*Maintenance* ..... Irving J. Feinberg, R.A.
*Nutrition* ..... Norman Jolliffe, M.D.
*Permits* ..... Walter A. Foley
*Personnel* ..... Samuel Sigoda
*Preventable Diseases* ..... Morris Greenberg, M.D.
*Public Health Education* ..... Abe A. Brown (provisional)
Morey R. Fields, Ed.D.
(returned from leave, June, 1957)
*Public Health Nursing* ..... Patricia I. Heely, R.N.
*Public Relations* ..... Karl Pretshold
*Records and Statistics* ..... Carl L. Erhardt, B.B.A.
*Sanitary Engineering* ..... Harold Romer, P.E.
*Sanitary Inspections* ..... William Sauer
(resigned April, 1958)
Irving Dubinsky (acting)
*School Health* ..... Robert W. Culbert, M.D.
*Tuberculosis* ..... Arthur B. Robins, M.D.

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*Public Health Research Institute* ..... George Hirst, M.D.

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*Secretary of the Department* ..... Charles F. Osborne
(died October, 1957)
William J. McCleary, Jr.
(appointed January, 1958)
*Chief Clerk of the Department* ..... Samuel Sigoda
*Counsel of the Department* ..... Harry Hollander, LL.B.
*Administrator, Budget* ..... George Weir

## Consultants

*Public Health Engneering* ..... William T. Ingram
*Social Work* ..... Caroline Elledge

## Authority, Duties and Powers of the Department of Health

Section 556. a. The department (of health) shall have jurisdiction to regulate all matters affecting health in the city.

b. The authority, duties and powers of the department shall extend over the city, and over the waters adjacent thereto, within the jurisdiction of the city and within the quarantine limits as established by law.

c. Unless otherwise provided by law, it shall be the duty of the department to enforce all provisions of law applicable in the area under its jurisdiction for the preservation of human life, for the care, promotion and protection of health and relative to the necessary sanitary supervision of the purity and wholesomeness of water supply and the sources thereof.

. . . from the New York City Charter

This report was edited by Karl Pretshold, Public Relations Director of the Department, assisted by Doris Bressler and Mrs. Rita Hastings. The volume was designed, produced, and distributed by the Bureau of Public Health Education.

# THE COMMISSIONER REPORTS

To pick out the highlights of the years 1957-58 in the City's health is obviously no easy task. One can look for such highlights from many points of view.

What are most citizens interested in hearing about? What were the most dramatic incidents which occurred? What were the most important scientific achievements? What will historians be likely to record as the most significant achievements in health and medicine — those that led to permanent gains?

Then there is always the question as to whether the Commissioner of Health should report only on what the Department of Health does or on health conditions of the community in general.

It is impossible to be limited to the former for the Department works cooperatively with so many groups and individuals in the community that separation would be meaningless. Moreover health is a community concern and the public looks to us for reports on the status of the health of New Yorkers. This is influenced by a wide variety of factors: the standard of living; the extent of overcrowding in slum areas; the number of underprivileged people who have recently come to the City; the availability and quality of medical care given by practitioners and by hospitals; the health awareness of the public; the aggressiveness with which important health problems are tackled as soon as they arise or as soon as there are specific things that can be done about them. All these factors play a role. I shall therefore pick out only questions which have been repeatedly asked in these years.

1. *What was the status of the City's health?*

With the exception of a major outbreak of Asian influenza which led to an increase in the death rate, the state of the City's health was remarkably good. For so many persons to live in such a physically complex community and enjoy such good health is indeed an achievement. Nevertheless, many persons are not receiving the best that modern medicine knows how to give and no alert health expert can be happy about many of the deplorable conditions seen on the City's health front.

2. *What progress was made against the greatest killers?*

Diseases of the heart and blood vessels and cancer continued to be our major killers. Progress in controlling them is slow. Cancer deaths can certainly be cut down if persons who have the disease are diag-

nosed earlier. Until the cause and prevention of cancer is better understood the only hope for the patient is to have his disease diagnosed early so that he can get treatment more promptly when the possibility of cure is much greater.

We know that one-third of those who die of cancer each year could be saved if the disease were diagnosed early and effective therapy instituted. For example, when cancer of the breast is found when it is localized, the percentage of those cured is as high as 80 per cent. Once it has spread to the armpit, however, the rate of cure drops to 30 per cent. Cancer of the cervix, if found just when it is beginning, can be cured in almost 95 per cent of the cases.

The Department in cooperation with Harlem Hospital moved forward in trying to find cheaper and more practical ways of discovering cases of cervical cancer early enough to save more lives. There are some 400 deaths from this cause alone each year in the City.

In heart disease there has been little change in death rates. Advances in research are being made but the problems are far from being solved. The Department's own Anti-Coronary Club is an interesting contribution and one of which the City can well be proud. This was one of the first attempts to test a hypothesis that changes in the diet, particularly of men, might lessen the chance of developing heart disease.

3. *What illnesses cost people the most?*

New York City's families spend more money on repairing decayed teeth and on other dental services than on any single other illness. They lose more time from work because of upper respiratory infections, including the common cold. Science has not yet found a way of preventing upper respiratory infections and knows relatively little about their treatment.

It has however produced an effective way of reducing tooth decay by 60 per cent. This is through fluoridation of the community water supply. In the years 1957-58 evidence continued to mount proving the safety and effectiveness of fluoridation. The American Medical Association in its re-study reaffirmed its support of fluoridation as a method of preventing tooth decay. It is to be hoped that the City Fathers will, before too long, follow other major cities of the country and decide to fluoridate our waters.

Only thus can New Yorkers get relief from their too large dental bills. Because the school age population is increasing the Department is falling farther and farther behind in caring for the teeth for those school children unable to pay for dental service themselves.

4. *What about mental illness?*

This continues to be a major public health problem, particularly if one adds to the usual mental illness, the problem of alcoholism and drug addiction. There still need to be major breakthroughs in the scientific research field before too much can be expected on this problem. Nevertheless, the use of drug therapy and other modern methods have certainly brought some relief to the overcrowded mental hospitals and in turn relief to patients and their families. This has, however, shifted some of the burden of caring for people from institutions to the community. Demands for mental health services of all kinds is ever on the increase, as it probably will continue to be until more adequate answers are found. Services have expanded somewhat but personnel is in acutely short supply. Among real gains in services are the development of psychiatric services in a greater number of general hospitals and the more rapid transfer of patients to state mental hospitals.

5. *What can be done about the ever increasing cost of hospital and medical care?*

This is a major health question of our time. It is certainly one that bothers the individual family stricken by illness. The ever increasing number of persons covered by voluntary health insurance of one sort or another is helping many families hit by big medical bills. But the constantly rising costs, particularly of hospital care, would seem to indicate that a new look must be taken at the total structure and organization of our health and medical care services.

Is it possible that hospitals can be so reorganized that only those patients needing continuing and highly skilled care will be kept in acute sections of a well-staffed hospital while more ambulatory care and more care in convalescent sections of the hospital is given to others? There are now duplication of service and poor quality of service in some places and an increasing difficulty in staffing existing hospitals with competent personnel. All these facts are known.

The question is: What can be done? The appointment of the Commission on Health Services by the Mayor should be a great help and could well be looked upon, if it succeeds, as one of the important steps taken in the health field in these years.

6. *What about epidemics?*

Epidemics in the proper sense of the word now seldom hit New York. The year 1957 saw a major outbreak of influenza with an estimated 800,000 persons, or ten per cent of the population, afflicted. The cases were mostly in those under 20 years of age; the deaths were mostly of persons over 60.

There was also concern in many parts of the country over staphylococci infections, particularly in maternity services. The many years of vigilance, stimulated to a great extent by the Department of Health in its supervision of maternity services in hospitals, apparently has paid off, for New York City has not had the large outbreaks of staphylococci infections in these services that have been experienced elsewhere.

7. *What about poliomyelitis?*

Progress in curbing polio was an outstanding event during the biennium. There were fewer cases reported than in any other two year period in the City's history. It is tempting to ascribe this favorable situation to the wide use of Salk vaccine, but scientific integrity demands that such a judgment still be withheld. There were 86 cases of paralytic polio and four deaths in 1958 and 39 paralytic cases and one death in 1957. This is in contrast to a 10 year average [1946-55] before Salk vaccine was available of 452 cases and 30 deaths annually.

A special survey made in the winter of 1958-59 indicated that the City's continuing efforts to get polio vaccine into the arms of all New Yorkers had borne fruit. Despite the fact that there were still pockets in the underprivileged areas in which the level of immunization of preschool children in particular was far lower than is safe, the overall picture was a good one.

According to the United States Public Health Service reports, our record for getting people vaccinated is probably the best of any large city in the country. This is unquestionably true because the City has been willing to provide free vaccination for all those who have been unable to secure it from their own doctors. Day after day in schools, health centers, on the street, in low cost housing projects, in churches and other places, Health Department doctors have continued quietly but doggedly to immunize New Yorkers against polio. However, we are far from content and will continue our work on this situation.

8. *Looking backward in* 2008.

I venture the judgment that 50 years from now, the historian of health will say that there are two things in the activities of the Health Department that stand out as particularly significant in the 1957-58 biennium.

The historian will point to the remarkable job that was done in completely revising and rewriting the Sanitary Code which had not had a thorough-going-over for 40 years. He will remark on the change in name for the City's basic body of health laws. The significance of the change in name for those laws from "Sanitary Code" to "Health Code" will be noted.

Directly connected with the revision and rewriting of the old Sanitary Code was the adoption of provisions covering radiologic health hazards. The increase and constantly increasing use of x-rays and similar devices, isotopes and other materials discharging ionizing radiation both in medicine and industry has created a serious public health problem. The Board of Health faced up to that problem and after more than a year and a half of study by the Board and members of the staff of the Department, comprehensive regulations were written and adopted by the Board.

The new regulations were formerly adopted in March 1958 and later transferred and embodied into the new Health Code. This ranks as a highly important piece of work and achievement by the Health Department and the Board of Health.

Another big thing which the historian will undoubtedly comment on is the greatly increased interest and activity in the field of research in the Department itself.He will point out the growing number of research projects undertaken by the Department alone and by the Department in cooperation with universities, medical schools, hospitals and community health agencies. More than 50 different projects were carefully studied and 40 independent research ventures initiated in this biennium.

These have varied from specific evaluation of new techniques and new products for immunization against common communicable diseases to a study of the factors that influence people to choose a specific medical service, studies of nursing home rehabilitation procedures, the economics of medical care and the effect of a change of diet on coronary heart disease.

The development of a separate research division in the Department to test day to day practices and adopt new ideas, merely an idea four years ago, has been steady and sound. The full time staff now consists of some 18 members most of whom are paid for by funds secured from other than local tax sources. One of the two Deputy Commissioners has guided and developed the program in cooperation with many members of the staff of the Department and top research experts of the City.

In addition to these, more or less, intra-mural activities and the work of the Public Health Research Institute, Mayor Wagner established a Health Research Council which is empowered to study the whole medical research set-up in the City as well as to allocate funds to researchers in local medical schools, hospitals, universities, research institutions and City departments. The program is unique in that the

Council, which is composed of some 42 of the City's best scientists and leading citizens, will develop the program with the "fullest degree of freedom, flexibility and authority."

Mayor Robert F. Wagner and Commissioner Baumgartner discuss the City's major health problems at the inauguration of the Health Research Council in Caspary Hall, Rockefeller Institute, Sept. 16, 1958.

In setting up the Research Council the Mayor declared he considers this an investment, rather than a spending program. The recognition on the part of a local government that research is an important part of its operations is a milestone. One of the immediate objectives of the program is to attract and hold younger people in the field of research. The Council was appointed in September 1958, and immediately set about studying the needs, particularly for research carried on by universities and in municipal hospitals.

Throughout this report will be found instances of important research studies being carried on by the operating units of the Department. It is, in fact, of some interest that the reports of these bureaus sometimes puts more emphasis on the studies they are making than on their day to day routine work. This is as it should be; it shows that

Department staff members are keenly alert to new ideas and are not content with merely doing the same old job in the same old way.

9. *What about the health of mothers and babies?*

An important foundation for all health work is the proper protection of the pregnant woman and her offspring during the first few years of infant life. The years of infancy are those in which there is great susceptibility to infection and during which the correction of abnormalities can be started. They are the years in which all good health habits are established.

The Department has, therefore, always put great emphasis on its maternal and child health services. These services, as separately organized units and activities of the Department, were 50 years old during the biennium. The story of those beginnings is told elsewhere in this report.

During the biennium, the failure of the infant and perinatal mortality rates to continue the decline which characterized the last twenty years has been of great concern to the Department and to experts throughout the City. This phenomenon cannot yet be entirely explained.

This is a trend, however, that one sees throughout the country, particularly in areas with large underprivileged populations like those in New York City. We have been particularly concerned about the fact that the death rate of infants over one month of age has begun to show a tendency to increase.

We are also deeply concerned about the ever-increasing percentage of mothers who get late or no prenatal care during their pregnancies. These topics are more thoroughly discussed in the report itself.

It seems clear that two things must be done: [1] We must improve the quality of care of mothers and children in the obstetric and pediatric services of many of our hospitals; and [2] We must increase the research in the field of perinatal mortality so that more adequate means of preventing death in this age group can be found.

10. *"Minding the store."*

And finally may I point out that probably the most significant part of the Department's work is the fact that it "minds the store" and that the clients who use the services of that "store" are courteously and effectively cared for. This means for example that day-in and day-out the Department efficiently discharges responsibility, to cite but a few examples, for sanitary conditions in 100,000 food establishments; for a Poison Control Center, and a Premature Ambulance Service open

day and nights; for the care of 163,000 infants and preschoolers in its Health Stations, and for the school health program for all of the children in public and parochial schools; for the control of venereal diseases and tuberculosis; for operating case finding programs in diabetes, glaucoma, and cervical cancer; for keeping vital statistics; for assisting in home care and health education programs; for tracking down and controlling epidemics. In other words, a continuing heavy service load for the health protection of all New Yorkers.

# BOARD OF HEALTH

## The Basic Health Laws Revised After 45 Years

The three year task of completely revising and rewriting New York City's Sanitary Code was completed late in 1958.* The "Sanitary Code" which constitutes the City's fundamental health law was renamed "The New York City Health Code." The change in title from "sanitary" to "health" code reflects a change in New York City's public health law, from the merely "sanitary" regulations of an earlier age to a broader, more positive emphasis on regulations for creating better health.

The Board also adopted, in March 1958, legislation aimed at the control of radiologic health hazards. This is believed to be the first comprehensive radiation legislation adopted by any city.

When the task of revising and rewriting the Sanitary Code was completed, Dr. Leona Baumgartner, Commissioner of the Department of Health and Chairman of the Board, speaking for the Board said: "The work of rewriting the old Sanitary Code into the new Health Code was undertaken by the Board of Health in 1955 because the Board and top people in the Department were long aware that in many ways the old Sanitary Code was outdated and failed to meet the present day needs of public health.

"The old Sanitary Code, last revised in 1914, was a confusing document containing many obsolete provisions or provisions enacted to meet conditions which no longer exist.

"The new Health Code is a fundamentally sound and modern body of public health law which meets present-day needs and is sufficiently flexible to meet new situations and needs as they develop."

The Health Code is divided into five Titles, 55 Articles and 618 Sections under the Articles. It consists of approximately 170,000 words; 85,000 words of statutory, or legal, text, and about 85,000 words of annotations. The annotations give the relation of new portions of the Health Code to corresponding portions of the old Sanitary Code. The

* The New Code was formally adopted by the Board of Health on March 23, 1959, to become effective on October 1, 1959.

Dr. Samuel Z. Levine is sworn in for his second term as a member of the city's Board of Health by Mayor Robert F. Wagner, April 23, 1958. Onlookers (l. to r.) other board members: Chester I. Barnard, Commissioner of Health and board chairman Leona Baumgartner, Paul R. Hays, and Dr. Lewis Thomas.

notes point out the changes, give citations of court decisions bearing on different parts in the Health Code and explain the intent of the legal language used.

The first Title outlines the general powers of the Department of Health including the power to make inspections; make seizures and condemnations; issue permits; and license businesses and activities which are governed by the Code. It also outlines procedures for appeals and rulings made by the Department and sets forth administrative powers and procedures to other Titles, Articles and Sections.

The second Title carries provisions regarding the reporting of communicable diseases, safeguards to be taken to prevent their spread; the operation of blood banks and the administering of blood transfusions; the operation of clinical laboratories; and the handling of pathogenic organisms (i.e., bacterial cultures) for research purposes.

Because there have been tremendous advances in the treatment of communicable diseases, such as typhoid, diphtheria, and scarlet fever, and these advances have reduced deaths from such diseases, it has been possible in the new Health Code to modify many formerly rigid restrictions on persons suffering from these diseases.

The third Title covers matters involving maternal, infant, child and school health. This includes regulations covering maternity and newborn services of hospitality; the practice of nurse midwifery; day care services for children and health regulations covering institutions caring for children. Provisions for the protection of the health of children in the schools are also contained under this Title.

The fourth portion, or Title of the Code, covers environmental sanitation. This includes all regulations governing the handling, sale and distribution of food and drugs and health aspects of housing and buildings.

Regulations concerning the control of insect and rodent pests, the labeling and handling of commonly used hazardous, or potentially hazardous substances, and the regulation of sewage disposal and prevention of water pollution and the regulation of bathing establishments, barber shops and beauty parlors are also contained under this Title.

An entirely new provision is that covering chemical food additives. The new provision requires that chemical additives may be used in food only after their safety has been established. Under previous legislation, manufacturers were permitted to use an additive until regulatory agencies could prove that it was harmful. Now, proving that additives are safe becomes the responsibility of the manufacturer.

The Board decided to reenact, without substantial change, existing health legislation covering milk, milk products and frozen desserts. The Board, in a formal statement, said it intends to continue its study of the problem of milk legislation.

The fifth Title covers records and vital statistics regulations.

The Rockefeller Brother Fund and W. K. Kellogg Foundation each contributed $30,000 toward the cost of drafting the new Code. The Board of Estimate appropriated $100,000 of the $160,000 spent on the revision work. The Rockefeller Brother Fund and the Kellogg Foundation made substantial contributions because, over the years, many of the policies and regulations first adopted by the New York City Board of Health have been followed in other communities throughout the nation, in states as well as in cities. The New York City Sanitary Code often served as a model for basic public health laws elsewhere. Because the new Health Code is expected to have substantial influence on the writing and revision of public health laws elsewhere, the Fund and Foundation made their contributions as a public service.

The technical work of legal research, revision and rewriting of the old Sanitary Code into the new Health Code was done under terms of a contract between the City of New York and the Legislative Drafting Research Fund of Columbia University. All matters of policy were, of course, decided by the Board and the technical work of putting those policies in exact statutory language was done by members of the drafting staff.

After getting policy directions from the Board on each matter to be covered by the Health Code, the drafting staff consulted members of the staff of the Health Department. Scores of drafting conferences were held with Department officials and many meetings were held, in regard to some areas of the Code, with officials of other City Departments as well. All drafts submitted to the Board of Health were sent out, with requests for comments, criticisms and suggestions, to experts in each field, to industry and other groups affected, to public and private groups interested in particular phases of public health, to Federal, State and local agencies throughout the United States and the State of New York, to schools and faculty members of schools of public health—in brief, to all persons who could reasonably be expected to make some contribution to the consideration of specific areas of public health.

Several hundred copies of each article of the Code—in some instances, as many as a thousand copies—were thus distributed for such comment, criticism and suggestion. Many persons, in government, in

industry, in medicine, in the sciences, in the universities, gave freely of their time and special competence, writing detailed comments on drafts and submitting valuable suggestions for improvements.

Especially noteworthy contributions to the work of the Board were made by the New York Academy of Medicine and New York City's five county medical societies.

All of these comments were carefully indexed and were presented to the Board of Health and considered before the revisers received instructions for the preparation of final drafts. The final drafts were then brought before the Board which approved them "in principle." Those segments approved "in principle" were laid aside and later collated into the completed Health Code.

In all, members of the drafting staff estimate at least 2,000 authorities, experts and interested persons and groups outside the Health Department helped by giving their comments, advice and expert criticism. Those giving comments, advice and criticism ranged from nationally recognized experts and authorities in such specialties as epidemiology and radiation, to persons and groups whose work or business is affected by portions of the Code, such as restaurant operators and members of unions in regulated industries.

## Radiologic Hazards

The radiologic health hazards provisions of the Sanitary Code were drafted after consultation with more than 150 of the nation's chief experts in this field. This problem had been under study by the Department and the Board for more than a year before the new regulations were adopted. The radiologic sections adopted as sections of the old Sanitary Code in March 1958 were, of course, transferred to and embodied in the new Health Code.

"The increased and constantly increasing use of x-ray and similar devices, isotopes and other materials emitting ionizing radiation both in medicine and industry made enactment of these regulations necessary," Dr. Baumgartner, Commissioner of the Department of Health, said at the time the Board acted.

The new sections provide that all installations where radiation is produced, used, operated, or stored must be registered with the Department of Health. A registration fee of $15, covering two years, is required on first registration and $10 for each re-registration. Installations covered include medical x-ray or fluoroscopic equipment, or

Department of Health — The City of New York

# BULLETIN OF INFORMATION

## THE USE OF MEDICAL RADIOGRAPHIC EQUIPMENT (X-RAY DIAGNOSIS USING FILMS)

### *RADIOGRAPHIC (X-RAY) EQUIPMENT*

All x-ray equipment must meet certain long established and widely accepted safety standards as published in National Bureau of Standards Handbook 60 on X-Ray Protection. The most important of these are as follows:

1. Minimum added filtration is required on all diagnostic x-ray tubes (assuming 0.5 mm equivalent aluminum inherent filtration of the tube) as follows:
   (a) 2 mm aluminum for all fixed medical x-ray units (including fluoroscopes).
   (b) 1 mm aluminum for all mobile, portable, dental and podiatric x-ray units.

2. Each diagnostic x-ray unit (except fluoroscopes, dental, mobile, portable or podiatric units) shall have its control installed behind a radiation barrier (shield) with a window or other means for viewing the patient. The exposure switch shall be fixed in position so that the operator cannot operate it from an unshielded position (except for spot films).

3. Each diagnostic x-ray unit shall be provided with cones or diaphragms so that the radiographic field is no larger than clinically necessary. (Particular attention should be paid to chest, abdominal and spinal radiography).

4. Floor areas under x-ray tables and wall areas behind wall-mounted film holders in particular shall be adequately shielded in accordance with Handbook 60 if the area below or beyond is occupied.

### *USE OF RADIOGRAPHIC EQUIPMENT*

The radiographic field shall be no larger than clinically necessary. This requires the use of suitable cones or diaphragms. When circular cones are used the developed films should show unexposed corners. Gonadal areas, in particular, should be shielded from the useful x-ray beam wherever possible.

The dose to the patient (and the scatter to all others in the vicinity) can be reduced by the following means:

Use fast films and developers
Use the highest practical KV
Use the smallest size x-ray beam practical

**The dose to the operator and others in the vicinity can be reduced by the following means:**

**Remain entirely behind a protective shield during each exposure. Look at the patient if necessary through the window or by means of a mirror. It should not be possible to view either the patient or the x-ray tube (except through a protective window) during exposure. Others regularly in the vicinity should be protected by shielding or distance. If in doubt use film badges or other means of measuring the dose.**

Instructions sent to registered users of medical radiographic equipment.

substances such as isotopes which emit or discharge radiation; similar equipment or substances used for industrial or research purposes; and atomic reactors for the production of power. While all installations must be registered, other provisions of the Code do not apply to those installations under the supervision of the United States Government or the New York State Department of Labor.

Specific safety rules covering the shielding of sources of radiation, disposal of waste, transportation of radioactive materials, and the posting of warnings, both to the public, where that is necessary, and to those who operate or work around the radiation sources, are included in the law.

In general, the Code adopts the prevailing safety standards set up by the National Committee on Radiation Protection and Measurement. This Committee is a quasi-official scientific body which has Federal recognition. Its recommendations and standards are published by the United States Department of Commerce.

Before Board of Health action, March, 1958, the Department of Health had had a radiation control unit manned by specially trained sanitarians. Following the adoption of the new legal requirement, 12 sanitarians, given special training were transferred into the radiation control unit. The radiation control unit operates under the direction of a physicist, who formerly worked with the Atomic Energy Commission on problems of radiologic health hazards.

At the end of 1958, 10,655 installations had been registered with the Department. These included registration by 5,664 dentists, 70 hospitals, 392 podiatrists, 4,298 physicians, 112 industrial users and 63 veterinarians.

Enforcement of the Sanitary Code requirement is more a matter of education than police action. The Department inspects installations, calls attention of the owner or operator to any faults found, and suggests ways in which these can be overcome. No one desires to deliberately violate or evade the law. Such faults as are found are caused by ignorance, careless habits, or a combination of both, and when attention is called to them they are corrected.

For instance, in the x-ray unit in a hospital, technicians may use a long cord with a switch at the end. The technician is able to operate the machine from any part of the room, even though he may thus expose himself to radiation. When hospitals are instructed to have a fixed switch behind a shield, which will assure the operator can not turn on the machine without protecting himself, they invariably make the change.

One of the effects of registration inspection of x-ray installations has been that people long accustomed to using them have again been made to realize that when improperly used, serious hazards can be created.

# MATERNAL AND CHILD HEALTH SERVICES

## Protecting the Youngest

The fiftieth anniversary of New York City's child health services occurred during the 1957-58 biennium. It was late in the summer of 1908 that the Department of Health began devoting special, organized effort to the protection of the health of the City's children.

The "Division of Child Hygiene" was organized by Dr. Josephine Baker around a direct and simple, but then an entirely new approach—that it is better to keep babies and children well than it is to cure them after they become ill. Dr. Baker later wrote that when she started that work: "I had no staff; I had no money; all I had was an idea."

That idea was made to work; the new approach spread throughout the world. Within a few years after Dr. Baker established the Bureau of Child Hygiene, states throughout the Nation set up similar units and later the Federal government established the Children's Bureau. In more recent years many nations have followed the lead of New York City.

Mothers and children—some grandmothers too—flank the stairway in historic City Hall before ceremonies marking the 50th anniversary of the establishment in 1908 of an infant care program in the Health Department.

In the 50 years that the Department has operated its maternal and child health services it has given direct service in its Child Health Stations "well baby clinics" to more than 3,000,000 infants and young children. During 1957-58 there were 351,147 infants and preschool children registered in the 78 Health Department child health stations and the four privately supported clinics that are supervised and partially staffed by the Department. This was an increase of 12 per cent over the 1955-56 biennium when 313,291 babies and young children were cared for.

The story of the work and accomplishments of the Department in this field are more fully told in "Now They Live: 50 Years of Better Health for New York's Mothers and Babies."*

Some of the achievements and results to which this work contributed can be shown by comparing some statistics for 1908 and 1957.

In 1908 there were 146,000 births in New York City and 16,231 infant deaths giving a birth rate of 32.7 and an infant mortality rate of 111.2. In 1957 there were 166,977 births and 4,176 infant deaths for a birth rate of 20.7 and an infant mortality rate of 25.0. This was a drop of 36.7 per cent in the birth rate; of 77.5 in the infant mortality rate.

In 1908 there were 699 maternal deaths giving a maternal mortality rate of 47.9 per 10,000 live births; in 1957 there were 107 maternal deaths, giving a rate of 6.4, a reduction of 86.6 per cent.

Diphtheria, whooping cough, scarlet fever and measles together killed more than 4,200 persons, most of them children, in 1908. Fifty years later there were no deaths from diphtheria, whooping cough or scarlet fever; measles caused three deaths.

Today immaturity, which caused 1,159 deaths in 1957; post natal asphyxia and atelectasis (841 deaths in 1957); congenital malformations (696 deaths); influenza and pneumonia (545 deaths); diseases peculiar to early infancy (300 deaths); birth injuries (294 deaths); and accidents (57 deaths) are the leading killers of infants.

In children from one to 14 accidents, malignant neoplasms, influenza and pneumonia and congenital malformation are among the leading causes of death. In 1957, which was typical of both years of the biennium, accidents caused 268 deaths; malignant neoplasms 213 deaths; influenza and pneumonia 200 deaths and congenital malformations 157 deaths.

With the present low infant mortality rate, each further reduction.

* "Now They Live. . . ." Third Edition, New York, 1958.

however slight, becomes increasingly difficult to achieve. Since most of the leading causes of infant mortality are complex, getting at and correcting them is difficult. It was on such difficult and complex problems that the child health services of the Department concentrated much of its work in 1957-58.

In the two years, 1957-58 there were 334,752 births compared with 330,703 in 1955-56, an increase of 1.2 per cent. The infant mortaliy rate for the two years was 25.7 (25.0 in 1957, 26.5 in 1958). There were 213 maternal deaths in the two years for a maternal mortality rate of 6.3 per 10,000 live births (107 deaths in 1957 and 106 deaths in 1958).

There was an increase of 2.2 per cent in the number of premature births in 1957-58 compared to 1955-56. In 1957-58, 9.1 per cent of births were premature; in 1955-56, 8.9 per cent were premature.

In 1957 the infant mortality rate among infants born of white mothers was 19.6; among non-whites 41.9 among Puerto Ricans 30.7. Both the number and percentage of premature births and infant deaths is higher among children of non-white and Puerto Rican mothers, than among white mothers.

The number and percentage of births in New York City to Puerto Rican and non-white mothers is increasing steadily. Ethnic changes are, of course, nothing new to New York City, a community whose growth across 350 years has been accounted for by successive waves of migration. In the five years, 1906-10, just when the Department's child health services were getting under way, immigration into the United States hit its all-time peak. In those five years, 4,962,310 immigrants entered the United States with more than 80 per cent coming through the Port of New York and hundreds of thousands settling here. Thus migration and ethnic changes in the population are not new problems to the Department, though the changes now going on cause problems of particular toughness.

That group of mothers who get no prenatal care or late care continues to be a serious problem. In 1957-58, 4.3 per cent of births (14,476 infants) were born to mothers who had no prenatal care, while the mothers of 14.7 per cent (48.282 infants) received only late prenatal care. In 1955-56, 5.8 per cent of mothers (19,031 infants) got no prenatal care; 11.3 (37,271) got late care. Perhaps, this reduction of nearly 26 per cent in the number receiving no prenatal care

is a measure of Department and community effort to increase prenatal care. However, it will be noted that there was a substantial increase in the number who got only late prenatal care.

Since about 80 per cent of mothers do get prenatal care, the bigger issue is: What sort of care do they receive? In those health districts where the infant mortality rate is high, East Harlem and Central Harlem for example, prenatal care given in hospital clinics is not good. Therefore, the Maternity and Newborn Division of the Bureau of Child Health is concentrating efforts on getting hospitals to improve their prenatal clinic services. Initially all prenatal clinics in municipal and voluntary hospitals in the East and Central Harlem health districts were surveyed.

The surveyors found the clinics under-staffed, overcrowded with long waiting periods, inadequate supervision of medical staff, nurse shortages, and other shortcomings. Following the surveys, the findings were laid before representatives of the hospitals at a conference. Joint efforts were made to seek solutions to some of the vexing questions. In two of the hospitals surveyed, notable progress in improvement occurred following the survey and conferences.

Similar intensive efforts seeking improvement are continuing in East and Central Harlem and are being extended to other districts with high infant mortality rates. Educational material in both English and Spanish is prepared and given wide distribution and the services of members of the staff by both the Bureau of Nutrition and of Health Education are used. These and other staff members worked with the staff of the Department of Welfare to impress on Welfare Department staff members the importance of prenatal care for relief clients. The Visiting Nurse Services, the Community Service Society and other community health and welfare groups were also enlisted to help get better services in prenatal clinics. Effective work was done through the Interdepartmental Health Council.

One serious aspect of the problem of prenatal care and infant mortality is "out of wedlock" births. The mortality and morbidity rate in this group is very high, and naturally, a very large percentage of mothers get no prenatal care.

Department statisticians and experts in the Department's child health services estimate that nearly eight per cent of all live births in New York City are to unwed mothers. These infants constitute a high risk group, with a high incidence of prematurity and mortality.

By ethnic group, it is estimated, 1.2 per cent of white births; 24.0

per cent of non-white and 10.7 of Puerto Rican births are in this class. The variation by health districts is marked, being very high in those districts where poverty is widespread.

A preponderence of these births occur in municipal hospitals where there is often a distinct lack of social service which, of course, is particularly needed by this group of mothers. The traditional melodramatic view of the unwed mother as a young inexperienced girl, rejected by her family and the community and left to care for herself is no longer true. It is true that some of these unwed mothers are children of school age. However many are older women who have some common-law or semi-permanent relation with the father and may even have a family, however unstable.

The Community Council of Greater New York has been asked by the Department to conduct a study of this group. The Community Council will seek to obtain information about the sociologic characteristics of this group and why mothers in this group do not seek early and continuous prenatal care.

The Department of Welfare and the Board of Education will cooperate in conducting this study.

## Midwives

At the close of 1958, two women were licensed by the Department to practice as midwives. In the first nine months of that year, only three deliveries were made by these midwives. It is hoped that the old fashioned midwife will completely disappear, but the need for well trained nurse midwives is fully recognized. In the Sanitary Code, which is being completely revised, one of the new sections is entirely devoted to standards for the training and qualification requirements of nurse midwives.

## Better Care At Birth

Section 110 of the Sanitary Code gives the Department authority to regulate hospital maternity and newborn services. The problems related to poor physical set-up and equipment in maternity and newborn services are definitely diminishing. Over the years, the Department's policy of reliance on consultation and education, rather than tough enforcement, has brought results. Even those hospitals where there was a recalcitrant attitude have begun to appreciate the importance of the requirements and standards set forth in Section 110.

A basic problem, maintaining an adequate nursing staff, still remains. There is a shortage of registered nurses in all hospitals, especially for night coverage. And further, although an increasing number of hospitals are aware of the need for social service work, many are still inadequately staffed and have to rely on community agencies. On the whole, there is a desire and real effort to conform to the requirements of Section 110 and the atmosphere is almost universally one of goodwill and cooperation.

photo by United Press International

Smallest (1 lb. 5 oz. at birth) infant known to have survived in the 10 years of the Department's special program for premature infants celebrates her first birthday, August 9, 1958, at the New York Health Show in the Coliseum.

## Prematures

Since prematurity is the leading cause of perinatal, neonatal and infant deaths, prevention of prematurity would save lives. Until total prevention of prematurity becomes possible, if it ever does, protection of those born prematurely is essential. Preserving the lives of premature infants requires special skills and special services.

In 1948 the Department set up its Premature Transport Service as an important step in its premature program. The Transport Service moves premature babies, born in hospitals which cannot give them the care they need, to hospitals which have approved premature centers where they are given the special attention and care they need. Comparing the survival rate of those for whom transport was requested and who were placed in a premature center, with those for whom transport was requested, but who could not be placed, it is certainly conservative to state that the lives of 1,000 premature infants have been saved by this service.

In 1957-58 requests to move 1,850 premature infants were received and it was possible to place 1,486. Among the babies placed, there were 70 sets of twins, but no triplets. About 70 per cent of the babies transported were moved within 24 hours of birth.

The majority of families to whom premature infants are born require financial assistance since the care of premature infants is so expensive. In 1950 New York City set up a program of financial aid to such families. During 1957-58 more than 5,300 premature infants were cared for under this program at a cost of more than $2,500,000. The average cost to the City was around $425 or $450 per infant.

In 1948 there were six premature centers able to care for 143 premature babies at any one time; now there are 11 with more than 250 beds. However, because of shortages of nurses with the special training and skills required for work in a premature center, not all of the beds are in actual use. There simply aren't enough nurses and so centers must turn away babies.

Training institutes on the care of prematures are held a number of times a year at New York Hospital under the sponsorship of the hospital, the New York City Department of Health, the State Department of Health, and the Federal Children's Bureau. Members of the staff of the Department's child health services participate in giving training at these institutes.

## Day Care and Foster Home Services

The basic responsibility of the Health Department to protect and promote the health of children away from their homes is carried out by the Division of Day Care and Foster Homes. Regulations for the pro-

tection of such children are set forth in the Sanitary Code. Agencies and foster homes accepting children for care must be licensed by the Department of Health. Licensing supervision is coupled with consultation and education of the owners and staffs of agencies to improve the care of children whom they serve.

Approximately 22,000 children under six years of age attend about 500 nursery schools, play groups, child care centers and private kindergartens; 7,000 children live in some 4,000 foster homes; more than 100,00 participate in about 600 day camps and play groups during the summer; more than 17,000 neglected and abandoned children reside in temporary shelters or permanent institutions.

The Division is subdivided into four units, each responsible for the following services:

## Day Care

Specialists in the fields of early childhood education, public health nursing, pediatrics and parent education assist owners and directors to meet the requirements of the Sanitary Code and where possible to provide higher standards of service to children and their families.

Among the 500 licensed day care agencies, there are 67 with special health programs conducted by the Health Department. Sixty-six are child care centers for children of working parents subsidized by the Department of Welfare and three non-profit voluntary agencies serving economically deprived children. Some 4,000 children enrolled in these agencies receive physical examinations every six months. Parents of the children are present in all cases. An eye screening program has also been instituted. All children in these centers are tested before entering the public schools and referred for ophthalmological care where indicated.

Increasingly evident in the day care field is the numbers of children with various physical, mental and emotional handicaps being served in groups with non-handicapped children.

## Day Camps

The Day Camp Unit staff consists of two day camp consultants and two pediatric consultants. They frequently call upon the resources of various bureaus of the Department, such as Sanitary Inspections, Sanitary Engineering, Food and Drugs, Nutrition and Public Health Education.

Day camps and play groups which operate during the summer months for children over six years of age do not require Health Department permits. However, in the interest of safeguarding the health and welfare of the more than 100,000 children who attend some 600 such day camps, the Department offers consultation and guidance to owners and directors. Throughout the year planning conferences and staff training sessions are held. During the summer, field visits and consultation is given. Agencies are helped to set up sound health programs and in a few instances demonstration programs have been provided.

In 1958 "A Day Camp Director Speaks" — a guide to the operation of day camps and play groups — was published by the Department and distributed widely. In addition a semi-annual Newsletter with special items of interest to the day camp field is prepared and distributed by the Department.

It has been encouraging to note the slow but steady improvement in the health conditions of the day camps.

## Foster Homes

Minimum standards for physical health care of children in foster homes is set up by the Department of Health. Public health nurses working out of the District Health Offices supervise over 400 homes in which there are about 700 children. The Foster Home unit works with 33 child placing agencies who not only find foster homes but certify to the Department that these homes meet Health Department standards. They supervise over 3,500 homes where about 6,500 children are served.

Close to two thousand children are awaiting foster home placement and the number is steadily increasing. However, the number of foster homes remains essentially unchanged. Although there has been an increase in foster boarding home rates, it has not stimulated more people to take in foster children.

The Department has long recognized the need of children in foster care and their families for skilled case work services and has worked intensively to transfer the foster home service to a more appropriate public agency.

## Shelters

Two pediatric consultants work with 13 temporary shelters with

a capacity for 1,100 children to see that the Department's standards are maintained.

Abandoned and neglected children number over 17,000 with close to 3,000 awaiting placement. Although there have been efforts to extend the bed capacity in some public and private shelters, it has not kept up with the ever increasing demand.

The problems in the shelters remain essentially those of being full to capacity with continuing pressures to accept more children than they can adequately serve; rapid turnover of staff and inability to attract well trained personnel for the direct care of children; inability to obtain adequate mental health services at the time they are needed. Despite these drawbacks, the quality of shelter care given shows increased understanding and a more sympathetic concern for the children and a more thorough attention to their needs than was true even five years ago.

# Health For School Age Children

Providing health services for the more than one million children in the New York City Public Schools is the responsibility shared by the Department of Health and the Board of Education. The Department of Health also supplies school health services for many parochial schools. The Bureau of School Health of the Department of Health has an orderly screening and referral service and a careful physical examination program which is aimed at finding those children in need of care and then doing what it can to see that they get that care.

## Examinations

Routinely, pupils are examined upon admission to school for the first time; at the 6th grade level; the pre-high school level, 8th or 9th grade; and on entrance to high school. A final examination is made in the 4th year of high school. In the 1956-1957 and the 1957-1958 school years* 312,312 newly admitted children were being examined, about half by Bureau doctors, about half by family physicians.

Of 312,312 new admissions examined in those two years 63,325 or 20 per cent were in need of further health care.

There were 133,033 6th grade examinations made in the two school years with school physicians performing just over 50 per cent and private physicians the remainder. It was found that 20,429 or 15 per cent were in need of medical follow-up. The final examination for elementary and junior high school pupils is given in the 9th grade in junior high school, or in the 8th or final grade of elementary, public or parochial schools. These youngesters are either pre-adolescent or in early adolescence. This is one of the most important examinations that youngsters undergo because it is then that health guidance can be most helpful for a child. In the two school years, 1956-1957 and 1957-1958, 147,425 pre-high school examinations were made. These different school level examinations are made by appointment so that parents may be present. Traditionally, parents are present at about 70 per cent of the new admission examinations, but in later grades that percentage drops to below 50 per cent. When a child has a health

* Figures for school services are routinely given in school years, i.e., September-July, not calendar years.

problem it is, of course, desirable for either the nurse or doctor to meet the mother and discuss the problem. In the two school years covered here, approximately 238,122 such conferences were held by nurses with parents and about 12,993 doctor-parents conferences were held.

Health problems do arise between scheduled examinations. When teachers note health abnormalities, they refer the child to the school nurse or doctor. Second, school nurses meet with teachers and discuss each child in the teacher's class. Such teacher-nurse conferences are scheduled once a year for each grade. During the two school years here reported, 29,516 such teacher-nurse conferences were held and 185,221 were selected for follow-up.

When a teacher thinks a child needs the attention of the nurse or doctor, a single visit may clear up the situation. Where the physician decides a further work-up is necessary the child is given a special "referral" examination and the parent is asked to attend it. Such examinations are thoroughgoing. In the 1957-1958 school years, 97,774 children were screened and 45,695 required medical or nursing follow-up.

An extensive all-out program is carried out for those youngsters found to need care. Carrying out the follow-up program involves complex and detailed work. In the 1956-1958 school years, nurses made 918,322 follow-up inspections. School doctors made 191,429 inspections.

The home visit by a nurse is often of particular value in follow-up work. When other measures failed to get something done for a child, such a home visit is frequently effective. Nurses made 242,380 home visits during the two school years covered here

How effective is the school health service in getting children who need care under care? One way of measuring it is to compare the number of forms issued to children for referral to a private physician or a clinic, and compare it with the number of such forms returned showing that the child was actually placed under care. In 1956-1958 there were 604,514 referral forms issued and 412,483 or 68 per cent returned.

In the secondary schools a student-nurse health conference replaces the parent-nurse conference because it is felt that in most instances the youngster is able to tell his parents about his health needs. In serious situations, where a parent's presence is necessary an interview is arranged. Examinations and conferences at the high school level total 104,732 in the two years and 30,192 were referred for medical care.

## Polio Vaccinations

Polio vaccination programs have been extensive in New York City schools. They began in the elementary and high schools and during the 1956-1958 school years were extended to all secondary schools. More than 2,290,285 children in the schools have had their first, second and third shots in the schools since the programs started in 1955. Approximately 50 per cent of all children in elementary and junior high schools have had all three shots while about one-third of the high school youngsters had had three injections by June, 1958. Many thousands more received shots from their family physicians. Now, all children newly admitted to school, whether to kindergarten or to first grade, get polio shots on a routine basis. There is evidence that an increasing percentage of youngsters have had their shots before they start school.

# Handicapped Children

As over the years the infant mortality rate has been forced downward, an increasing number of children survive with auditory or visual defects, cardiovascular and orthopedic disorders, cleft palate or cleft lip or other congenital malformations, epilepsy and and mental disorders. Prevention of such disorders is of paramount importance. However, until solutions are found rehabilitation services must be made available to more children to correct abnormalities and to help such youngsters live happier and more useful lives and grow into self-reliant adults.

Salk vaccine promises to wipe out polio. Improved care for premature infants is stopping blindness due to retrolental fibroplasia, and prophylaxis can prevent recurrence of rheumatic fever in susceptible children. Surgical advances can now correct many congenital defects, improved hearing devices and speech training can assist children with hearing problems. New surgical procedures are helping meet the problems of more and more orthopedically handicapped children and physical and occupational therapy can aid in rehabilitation of children with cerebal palsy and new drugs help control epileptic seizures in children. Those with cleft palates and cleft lips are being helped by plastic surgery, speech therapy, orthodontia and prosthodontia.

New Yorkers always had services for the orthopedically handicapped children. Since medical advances have been made in other fields, services for children with other handicapping conditions have been steadily expanded.

New York City now has available comprehensive services for the child with epilepsy, cerebral palsy, muscular dystrophy, cleft palate, congenital heart disease and other congenital malformations, and hearing impairment. The provision of comprehensive services in the same general hospital to meet the physical, social, and emotional needs during growth and development of children with these handicapping conditions, and particularly children with multiple handicaps, is now making it possible for children to receive the care they need in one place. This development in the past two years (1957-1958) has helped lessen fragmented care, long a problem in this and many other communities.

## Services Available

The Bureau for Handicapped Children plays an important role in pediatric rehabilitation. Its major function is to help make services available to children and families who need them and to help raise the standards of care given these children. The Bureau enlists the aid of family physicians, school health and child health physicians, public health nurses, social workers, hospital and community agencies in first finding the child with a handicap and then helping secure the care needed. The Bureau for Handicapped Children is responsible for the administration of the Medical Rehabilitation Program which makes it possible for preventive, diagnostic, therapeutic, or rehabilitative services to be given.

The Bureau carries on an active and expanding program of consultation to hospitals for setting up new services and improving or expanding existing ones. Additional services of the Bureau are: medical review and recommendations for special class placement and home instruction of children; operation of some diagnostic clinics and provision of medical social consultation to individuals, hospitals and community agencies on problems related to handicapped children.

## Medical Rehabilitation Program

Under the Medical Rehabilitation Program payment is made for diagnostic evaluation, hospital and convalescent care, braces, hearing aids and other appliances for children who need them. Families, when they can, pay part of the cost. Care is available under this program in approved hospitals for children with orthopedic disabilities, cerebral palsy, congenital cardiac conditions, cleft palate and cleft lip and other congenital malformations, hearing impairment, eye problems and epilepsy.

This program is constantly expanding. In 1948, 828 children were being aided; in 1957-1958 there were 12,457 children receiving help under the program. During 1957-1958, 2,737 children received braces and appliances: 6,457 were given inpatient care. Of the 12,457 youngsters who received services, 5,768 received service for the first time in 1957-1958. Of these 2,531 were under five years of age. More than three per cent of the 12,457 children were under one year of age.

In the two years 1957-1958, 22,279 applications were authorized for care at a total cost of $5,731,390, with parents paying $202,794 of that amount.

The major diagnostic categories and the number of children receiving care in each of them is shown in the following table:

*Children Who Received Services* — 1957-1958

| *Diagnosis* | *Number of Children* | | |
|---|---|---|---|
| | 1957 | | 1958 |
| Late effects of tuberculosis | 53 | | 41 |
| Late effects of acute polio | 66 | | 74 |
| Cleft palate and cleft lip | 183 | | 171 |
| Cerebral palsy | 574 | | 556 |
| Epilepsy | 803 | | 981 |
| Other disease of nervous system | 47 | | 94 |
| Strabismus and other eye conditions including congenital cataract | 325 | | 318 |
| Deafness, hearing impairment and other ear conditions | 801 | | 903 |
| Disease of bone and organs of movement (includes) | 730 | | 408 |
| Arthritis and rheumatism | 30 | 26 | |
| Osteomyelitis and periostitis | 32 | 19 | |
| Curvature of spine | 82 | 5 | |
| Congenital malformations (except congenital heart and congenital cataract) | 747 | | 1309 |
| Congenital heart disease | 157 | | 185 |
| Traumatic disorders (including accidents, burns) | 153 | | 118 |
| Hernia | 519 | | 457 |

One of the significant changes in care for handicapped children is the development of new services which give treatment on an ambulatory basis. Ambulatory services for children with hearing problems, cleft palate and epilepsy have been developed.

The average hospital stay for handicapped children has declined from about 85 days per child in 1949 to about 40 days in 1957. This decline in inpatient care may be due in part to the work of the Review Committee of the Medical Rehabilitation Program. This Committee was established in 1954 and has encouraged earlier discharge of children and more use of community resources for aiding the handicapped.

Payment for care of children with muscular dystrophy is not now permitted under the Medical Rehabilitation Program. Changes in State Department of Health policies would be necessary to make such payment possible. During 1957-1958 the Bureau for Handicapped Children cooperated with the New York State Health Department and voluntary agencies in a study of 34 children with muscular dystrophy at the New York State Rehabilitation Hospital at West Haverstraw, N. Y. One objective of the study, still under way, is to determine

how policies might be changed to include this group of children in the Medical Rehabilitation Program.

## Hospital Consultation Program

During 1957-1958, 49 hospitals and three convalescent institutions cooperated with the Bureau for Handicapped Children to provide care for children under the Medical Rehabilitation Program. During the period seven new services were added: two additional cleft palate rehabilitation centers; three additional convulsive seizure centers and two congenital cardiac surgical centers.

The number of hospital services now "approved for payment" are:

| *Service* | *Number* |
|---|---|
| Cleft Palate Rehabilitation Centers | 5 |
| Convulsive Seizure Centers | 6 |
| Hearing and Speech Centers | 4 |
| Orthopedic Services | 21 |
| Congenital Cardiac Services | 14 |
| General Pediatric Services | 35 |
| Eye Services | 14 |

Four hospitals were approved for "open heart surgery" and it is expected additional services will be approved in 1959. This means children in New York City no longer need seek this care in other communities.

An increasing number of children with orthopedic disabilities are being treated on an outpatient basis. This tendency toward outpatient treatment is, in the judgment of the Bureau for Handicapped Children, sound. During 1957-1958 the Bureau for Handicapped Children made a survey of the outpatient orthopedic services of 20 hospitals. Overall, those who made the survey felt, there is real need for improvement in these outpatient services.

Based on the survey a "Guide for Standards of Outpatient Care of the Children with Orthopedic Handicaps" was prepared and made available to hospitals for improving services. During 1959, the Bureau will continue to work on this problem.

Special needs in these services include payment for outpatient evaluations, treatment and rehabilitation of children with cerebral palsy, orthopedic problems and cardiac disorders. The coordination of outpatient, inpatient and community services needs considerable

strengthening if the total physical, emotional, social, educational, and vocational needs of handicapped children are to be met.

During 1957-1958, the Hospital Consultation teams conducted and held 96 conferences and surveys of hospital services. Problems, recommendations and standards of care were fully discussed. Such surveys and conferences materially aided in improving the quality of care given to children. They also furnished data for the evaluation of current programs and for setting new goals.

### School Placement

Cooperating with the Board of Education, the Bureau for Handicapped Children reviews all applications from physicians asking special class placement or home instruction for children with orthopedic, cardiac and visual handicaps.

In 1957 there were 246 special classes for the physically handicapped attended by 4,245 children; 1,672 were on home instruction; 1,084 were receiving instruction in hospitals and 90 in convalescent institutions.

During 1957-1958, 16,433 applications were processed by the Bureau staff; 7,589 in 1957 and 8,844 in 1958. Of the 16,433 applications, 2,156 were for children with cardiac disabilities, 2774 for children with eye problems who required either sight conservation or Braille classes and 11,503 were for children with orthopedic disabilities.

### Diagnostic Consultation Clinics

The Department provides one orthopedic consultation clinic, six cardiac consultation clinics and 25 eye clinics. During 1957, 44,049 children were examined in these clinics and 69,191 examinations made.

The eye clinic renders refractive care and refers children with pathological eye conditions for treatment either by private physicians or at hospital clinics. The greatest proportion of children served are youngsters attending elementary schools. Department clinics provide prescriptions for glasses which are purchased either by the family or provided by the Department of Welfare when the family is getting public assistance.

The Department plans to further emphasize the use of vision screening techniques as an early case finding method. It seeks to make the general public, general practitioners and pediatricians more con-

scious of the importance of eye screening examinations.

In 1957, 39,841 children made 64,590 visits to these clinics and visual and other defects were found in 36,534 youngsters. Of the 36,534, it was found that 1,459 had conditions serious enough to require referral for treatment.

## Cardiac Consultation Clinics

The six cardiac consultation clinics see children on physician referral. The number of children seen in 1957 and 1958, examinations made, diagnosis and results of examinations are shown on this table:

| | 1957 | 1958 |
|---|---|---|
| Individual Children Seen | 3,833 | 3,927 |
| Examinations Made | 4,226 | 4,391 |
| Diagnoses Made | 4,216 | 4,377 |
| No Cardiac Condition Found | 2,343 | 2,580 |
| Organic Heart Disease | 747 | 696 |
| Rheumatic | 293 | 260 |
| Congenital | 411 | 387 |
| Unknown | 34 | 42 |
| Other | 9 | 7 |
| Possible* Heart Disease | 545 | 607 |
| Potential** Heart Disease | 488 | 398 |
| Potential and Possible Heart Disease | 53 | 59 |
| Questionable History of Rheumatic Fever | 40 | 25 |
| Diagnoses Deferred | 57 | 49 |

* Diagnosis based on physical findings.
**History of rheumatic fever, but no evidence of heart disease on examination.

## Orthopedic Consultation Clinic

An orthopedic consultation clinic staffed by a Diplomate of Orthopedic Surgery, a public health nurse and a clerk, is operated by the Department at Mt. Sinai Hospital. This clinic provides orthopedic consultation for family physicians, school health and child health physicians. Children are seen on appointment and a complete report of the examination, findings and recommendation is returned to the referring physician.

During 1957-1958, 782 children were referred for consultation to this clinic and about 90 per cent were found to have an organic orthopedic disability. Among the frequently found disorders are scoliosis, tibial torsion, genu valgus, equino valgus, equino varus, pes planus. Less frequent, but of significance have been torticollis, cerebral palsy and other orthopedic and neuromuscular disorders.

## Medical Social Service

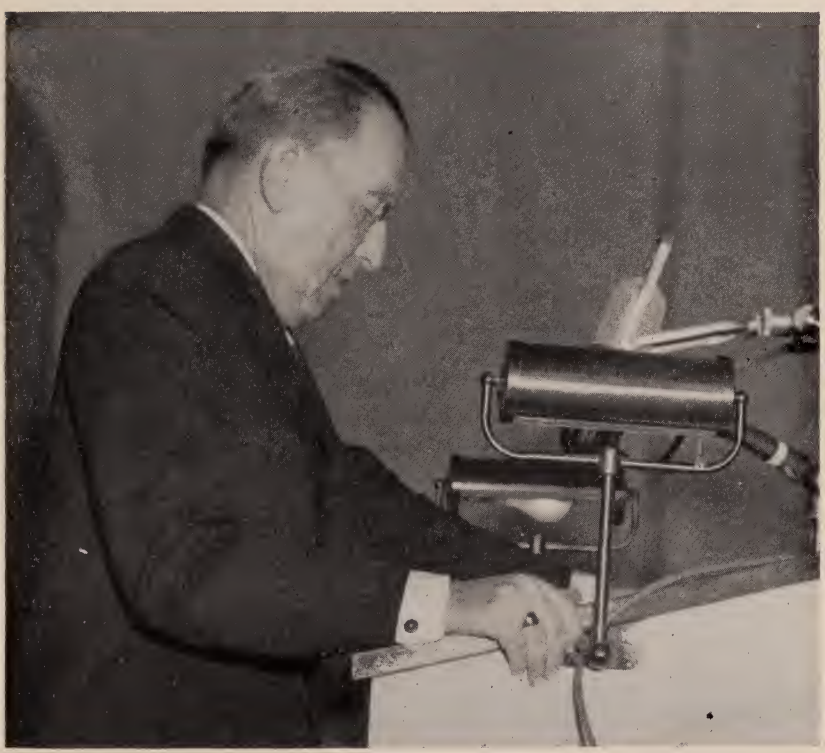
Because of the complex problems often facing families of handicapped children, many requests are made for help from the medical social work consultants of the Bureau. In this period, 4,044 families received services. Short contact cases work services were given to 2,949 families directly to help them in planning or carrying out treatment for their handicapped children. These were situations where family difficulties or multiple handicaps all contributed to making the child's total medical problem unusually complicated. Consultations were also given to hospital social service departments, private physicians, school health and child health services, public health nursing services and other professional personnel. Approximately one-third of the children were referred to the social work staff because of a complicated medical-social problem which needed clarification in order to determine the child's eligibility for help under the Medical Rehabilitation Program.

Another large number referred consisted of children whose handicaps were either multiple or of such severity that special planning was necessary with the treatment agency, the Board of Education and the family before school placement consistent with the child's limitations could be worked out.

# Dental Services

Almost every New York City school child needs some dental care every year. Seeing that he gets it is a major task of the Department of Health's Bureau of Dentistry working with the public and parochial school authorities.

Two-thirds of our youngsters receive dental treatment annually and our school children show a record of dental care twice as good as that of the general population. This achievement should not be minimized. Our joint efforts are fruitful, but still fully one-third of our youngsters do not receive any dental attention.



Basil O'Connor, President of the National Foundation, speaks in favor of fluoridation of New York City's water supply at Board of Estimate public hearing, March 6, 1957.

During the 1957-58 school year, of over 970,000 New York City school children who were referred for dental treatment, almost 329,000 (34 per cent) received no care at all.

Water fluoridation, which would reduce tooth decay by 60 per cent, offers the one realistic approach to changing this picture of dental neglect. Such a 60 per cent reduction has been achieved for the entire school population in such cities as Newburgh, Grand Rapids, Evanston, and Brantford. Philadelphia youngsters have already shown a 40 per cent reduction after only four years of fluoridation. In the meanwhile, in New York City hundreds of thousands of children are subject to unnecessary tooth decay, toothache and dental expense. The Department will continue its efforts in dental health education, treatment and rehabilitation, but full success can only be achieved through prevention. A preventive approach is now available in water fluoridation. Its achievement depends on the vocal and continuing support of those interested in the dental problem from the economic as well as the health viewpoint.

There was an increase of 17,000 in the number of dentally neglected children in 1957-58 compared to 1956-57. This would have been worse except for the increased load carried by Department of Health and Guggenheim clinics which cared for 5,000 more children than ever before.

Dental neglect among children is a city-wide problem and is worst in Manhattan where almost 50 per cent of children received no dental treatment while 35 per cent of those receiving care got it at Department of Health and Guggenheim clinics. In such districts as Manhattan's Harlem and Riverside, Bronx's Mott Haven and Morrisania, and Brooklyn's Fort Greene and Bedford, from 55 to 70 per cent of the children are victims of complete dental neglect.

## Dental Service Program

The Bureau of Dentistry now operates 165 dental clinics; 26 in health centers and 139 in selected schools. These clinics provide dental treatment for children who cannot afford care on a private basis.

The following summarizes the Bureau's clinic activities for 1957 and 1958.

*Summary of Dental Clinic Activities* 1957 *and* 1958

| Activites | 1957 | 1958 |
|---|---|---|
| Dental Sessions | 38,408 | 40,592 |
| Attendance in clinics | 374,981 | 389,771 |
| Visits to dentist | 287,322 | 302,687 |
| No. of individuals treated | 48,922 | 51,323 |
| Cases terminated | 30,960 | 32,654 |
| Number of fillings | 478,115 | 506,731 |
| Number of extractions | 18,925 | 19,522 |
| Other operations | 136,028 | 140,662 |
| X-rays | 38,820 | 44,712 |
| Fluoride treatments | 88,673 | 86,245 |
| Prophylaxes | 34,417 | 33,870 |
| Children under 6 years of age | 3,985 | 3,460 |
| Parents interviewed in school or clinic | 110,209 | 102,562 |

## Dental Rehabilitation Program

The Bureau of Dentistry administers a program to provide rehabilitation care for children suffering from seriously handicapping conditions of the teeth, face and jaws. Included are such conditions as cleft palate, congenital absence of all teeth, and marked underdevelopment or overdevelopment of the lower jaw. The purpose of the program is to help families meet the cost of such rehabilitation care which is often expensive due to complex services involved.

About 2,000 children are getting treatment under this State-aid program. On the average, rehabilitation takes close to three years. It is estimated that in more than 90 per cent of the cases the handicap is permanently corrected. The Department continues to emphasize the prevention of handicapping dental defects. It has been found that in carefully selected cases early care with simple devices can prevent more serious difficulty later in life.

# TACKLING THE KILLERS AND CRIPPLERS

## Tuberculosis

The course of tuberculosis in New York City in recent years has been a favorable one. The infection rate in younger individuals has dropped from almost 50 per cent in the late 1930's to less than 15 per cent now. The number of new cases of tuberculosis reported annually has decreased from 12,506 in 1930 to 6,117 in 1957, and 5,482 in 1958. The reduction in mortality during this period has been even greater, from 5,089 in 1930 to 952 in 1957 and 818 in 1958.

An important result of these changes has been an increasing concentration of tuberculosis in certain segments of the population and areas of the community. The most recent New York City data show that over 45 per cent of the new cases and 30 per cent of the deaths occur in Negro and Puerto Rican residents. Sixty-five per cent of the new cases are found in males, more than half of whom are over 45 years of age at the time of report.

The new cases are concentrated in the poverty-stricken areas of the City. These areas have a large portion of Negroes, Puerto Ricans and older white males. Half of the new cases are residents of Manhattan with most of them occurring in three health districts. The districts are: the Lower East Side where the City's homeless men are concentrated in and around the Bowery; Central Harlem with a large concentration of Negroes; and the Lower West Side with a large Puerto Rican population.

Of the 1,501 new cases reported in 1958 in Brooklyn, 887 come from the Bedford, Ft. Greene, Williamsburg-Greenpoint and Red Hook districts in that order. The level of poverty in these districts parallels the level of the proportion of cases reported.

In the Bronx, the Morrisania and Mott Haven districts, and in Queens, the Jamaica and Astoria districts, are responsible for most of the new cases. Similar trends are observed in the distribution of tuberculous infection and mortality.

There have been major changes in the treatment and supervision

of tuberculosis in recent years. The widespread use of anti-microbial drugs has resulted in the arrest of the disease and materially shortened the period of hospitalization in most newly discovered cases. This has made it possible to close a number of New York City tuberculosis hospitals. At the same time a larger proportion of patients now go on to a state of chronicity.

These trends have made it necessary to provide drugs for an increasing number of patients outside hospitals. The character of the ancillary services required by the tuberculous has also changed. There is less need for elaborate rehabilitation programs for patients with acute disease treated for a short period. The need now is for more adequate facilities for long-term care of patients with chronic tuberculosis.

In the field of prevention two methods of approach are now being used. BCG vaccination is being applied more widely in tuberculin negative individuals who face the risk of exposure to infection, particularly from household contacts. For those recently infected, who already react to tuberculin, isoniazid therapy is being recommended routinely.

The decline in tuberculosis has directed attention to other pulmonary ills. Most of these are in the stage of preliminary exploration and research. Included in this category are chronic bronchitis, pulmonary fibrosis and emphysema, cardio-respiratory disease, the pulmonary manifestations of air pollution and cancer of the lung.

With this background in mind, the staff of the Bureau of Tuberculosis drew up a program for its work in the future. A summary of that program follows:

## Case Finding

A recent statistical analysis indicates that there are approximately 8,000 persons in New York City who have tuberculosis but do not know they have it. The Department's case finding program should be directed toward finding those unknown active cases. The statistical analysis indicates that the unknown cases are pretty much like the known cases, concentrated in males over 45 and among the Negroes and Puerto Ricans, with the cases among the Negroes and Puerto Ricans predominantly in the 25-44 year age group.

In trying to find these unknown cases, major emphasis must be put on work in areas where older males and younger and poor nonwhite persons live. In order of importance these are:

(1) Routine x-ray of admissions to municipal hospital inpatient and outpatient services; (2) clients of the Department of Welfare and inmates of City prisons and correctional institutions, and (3) clinic and mass x-ray examinations in high rate districts. This Department helped strengthen the hospital admission x-ray program, particularly in the follow-up of cases and suspects. It should try to get routine x-ray examination of the welfare clients and correctional institution inmates. Its own mass survey program should be conducted on an area basis and concentrated in the districts described. Case finding activities in other groups and areas, and among contacts, should be curtailed to the extent necessary.

## Treatment

Long-term, uninterrupted drug treatment is now the cornerstone of the management of unhospitalized patients with tuberculosis. For this reason the drug treatment programs of Health Department clinics and hospital out patient departments should be expanded enough to handle the task. This would require the utilization of clerical and nursing service for the follow-up of patients who fail to attend regularly, and the use of drugs in the home whenever indicated. These services should be as freely available to patients under the care of hospital outpatient departments as they are in Health Department clinics. The same policies should apply to the use of social work and rehabilitation facilities.

Research should be conducted to determine the optimum drug regimens for ambulatory patients and ways should be found to insure that the medication is being taken regularly. The supervision of individuals with inactive tuberculosis who are not receiving drug therapy should be virtually eliminated.

## Prevention

Since the fundamental responsibility of the Health Department is prevention, its BCG program should be continued and expanded. INH prophylaxis should be used wherever medically indicated. The Bureau of Tuberculosis should participate in research on these and other preventive measures.

## Other Pulmonary Conditions

An active program of research in the fields of other pulmonary conditions should be established by the Bureau of Tuberculosis. The cooperation of other official and voluntary agencies, like the New York Heart Association, the American Cancer Society, the Department of Air Pollution Control, etc., should be solicited in this effort.

Carrying out such policies would require modification in the organization and operation of the departments and bureaus involved, and might even necessitate changes in their basic philosophies. Public

Heaf testing to find positive reactors to tuberculin was introduced during the biennium.

health practices of long standing would probably have to be radically altered.

*Statistical Service*

Contraction of the tuberculosis problem has made essential the statistical pinpointing of objectives and analysis of results of treatment. Exploration of new fields of research will present a further challenge to the imagination and ingenuity of the statistician.

The program of future work, drawn up by the staff of the Bureau of Tuberculosis, went into considerable specific detail, including a suggested timetable for many of the changes recommended. Meanwhile, during 1957-58 numerous changes were made in the policy and program of the Bureau.

In 1957-58, case finding activities were more selective than they had been, with the tuberculin test being used more widely in children and young adults. The Heaf multiple puncture tuberculin test was introduced into high school and college tuberculin testing projects. In the use of the mass x-ray surveys among adult groups, emphasis was placed on cooperative undertakings with other municipal departments rather than more or less random community surveys. The hospital admission x-ray program was expanded, routine x-ray examination of homeless and unsheltered men was inaugurated, and efforts made to strengthen x-ray case finding among the inmates of custodial institutions.

The routine x-ray examination of younger individuals was virtually eliminated through the use of the tuberculin test. Chest x-ray at the time of employment was stressed and the periodic plant survey given less emphasis in industrial and civil service groups. In 1957 two concentrated area surveys were conducted with excellent response. Because of other commitments, this type of project was not carried out in 1958 but its resumption in 1959 was planned.

The number of new admissions to chest clinics, individuals examined and total attendance at these clinics decreased. The number of patients under drug treatment continued to grow. The latter, increasingly, were individuals successfully treated in hospitals to whom medication was being administered to guard against relapse. Isoniazid for tuberculin converters and BCG for contacts were supplied more widely, the latter being extended to all Department chest clinics.

During the two years, services in several districts were consolidated. In 1957 the chest clinic at Montefiore Hospital, a voluntary hospital, was made the official clinic for the Fordham-Riverdale Dis-

trict in which the hospital is located. In 1958 the Kips Bay-Yorkville chest clinic was closed and the services shifted to the East Harlem Chest Clinic. Late in 1958 the Washington Heights Chest Clinic was combined with the Central Chest Clinic. A separate unit to serve homeless men under the care of the Department of Welfare was set up at the Men's Shelter late in 1958.

TUBERCULOSIS STATISTICS FOR 1957 AND 1958

| Chest Clinic Services | 1958 | 1957 | *Change* 1958/1957 *Number* | *Per Cent* |
|---|---|---|---|---|
| Diagnostic | | | | |
| New Admission | 45,783 | 49,511 | — 3,728 | — 7.5 |
| Individuals Examined | 79,830 | 80,945 | — 1,115 | — 1.4 |
| Attendance | 189,467 | 192,138 | — 2,671 | — 1.4 |
| Miscellaneous Visits | 47,968 | 56,966 | — 8,998 | —15.8 |
| Number of Patients on Treatment | 6,116 | 5,709 | + 407 | + 7.1 |
| Number of SM Injections Given in Clinic | 31,794 | 40,089 | — 8,295 | —20.7 |
| BCG Vaccinations | | | | |
| Number Given in Clinic | 4,160 | 2,095 | + 2,065 | +98.6 |
| Total X-rays Taken in Clinics | 189,067 | 199,842 | — 10,775 | — 5.4 |
| For Patients | 150,324 | 159,805 | — 9,481 | — 5.9 |
| For Survey Cases | 38,743 | 40,037 | — 1,294 | — 3.2 |
| Mass Chest X-ray Examinations | | | | |
| Total | 282,068 | 531,356 | —249,288 | —46.9 |
| Mass Surveys | 243,325 | 491,319 | —247,994 | —50.5 |
| Health Department Clinics | 38,743 | 40,037 | — 1,294 | — 3.2 |
| Tuberculosis Register (Active Cases on Roster as of December 31) | 10,153 | 11,364 | — 1,211 | —10.7 |

# Cancer Control

During the 1957-58 biennium the work of the Bureau of Adult Hygiene was expanded chiefly in cancer control activities. In expanding its cancer work, the Bureau was guided by the principle of collaboration with voluntary and City agencies which also work in this field. Cooperative research and therapeutic projects were developed which would have been far too costly for any single agency to have undertaken alone.

An example of this form of group sponsorship is the gastric cancer project, a cooperative venture involving four hospitals, one large medical group, a cancer detection clinic, a specialized cytodiagnostic laboratory and the skills of highly specialized workers. Some of the technicians working on this venture were specially trained by the Bureau. By pooling the limited resources of a group of agencies, each of which had something special to contribute, a research project of impressive breadth was organized.

A cervical cytology project was organized by the Bureau at Harlem Hospital. There, the resources of the Bureau and Harlem Hospital's Department of Gynecology were merged. Over a three year period, some 40,000 women will be screened and studied. Already some contributions have been made to study the origin and development and prevalence of cancer of the cervix.

Other studies similarly organized, and involving Kings County, French, Mt. Sinai, Brooklyn Jewish Hospitals and other agencies, dealt with the prevalence and diagnosis of cancer by the cytologic method in the respiratory, urinary, digestive, and reproductive tracts. These projects are going forward and have enhanced our knowledge of cancer in these organs and contributed to a definition of the role of cancer cytology as a diagnostic approach.

Negative as well as positive findings have been made. A study of cancer in the urinary tract which uses such new methods as the millipore technique of separating cells from large amounts of fluids has emphasized that the cellular approach in this organ system is not a practical routine.

The breadth of the Bureau's interest and activity in exfoliative cytology as a weapon against cancer was shown when, at the 1958 Inter-Society Cytology Conference, 14 of the 40 papers presented were reports on work in which the Bureau was involved.

In addition to this new work in the area of cancer research, the Bureau continued its year-in, year-out service activities at Cancer Detection-Prevention Centers. During the biennium, the Bureau began a cooperative investigation with Albert Einstein Medical College on reasons why patients delay getting a diagnosis and treatment of cancer. This study merges medical, social and psychologic disciplines in an effort to find why patients do not avail themselves of services that could help them. Effective diagnostic methods are of little use if people who need them will not use them.

## CANCER PREVENTION DETECTION SERVICES

### CLINICS

| | 1957* | 1958 |
|---|---|---|
| Visits to clinics | 7,552 | 9,411 |
| Laboratory analyses and tests | 18,420 | 18,818† |
| Number of persons examined (workups) | 3,552 | 4,406 |
| *Conditions diagnosed* | | |
| Malignant neoplasms | 29 | 36 |
| Precancerous conditions | 183 | 97 |
| Benign neoplasms | 10 | 20 |
| Circulatory | 902 | 1,723 |
| Genito-urinary, gynecological | 1,600 | 1,572 |
| Allergic, endocrine, metabolic, nutritional | 753 | 806 |
| Digestive | 776 | 360 |
| Other (musculo-skeletal, mental etc.) | 1,844 | 1,806 |
| No evidence of disease | 582 | 870 |
| Failed to complete examinations | 31 | 15 |

### COOPERATIVE PROJECTS

| | 1957 | 1958 |
|---|---|---|
| Social hygiene clinics—Persons screened | 1,403 | 1,455 |
| Analyses and tests | 1,805 | 1,755 |
| 11 Cooperating Hospitals—Persons screened | 9,466 | 32,436 |
| Analyses and tests | 29,712 | 74,808 |

### DIAGNOSTIC SERVICES

| | 1957* | 1958† |
|---|---|---|
| Number of persons served | 3,066 | 2,687 |
| Visits to services | 9,371 | 6,567 |
| Laboratory analyses and tests | 18,556 | 15,936† |
| X-rays | | |
| *Conditions diagnosed at Chelsea Diagnstic Center‡* | | |
| Digestive | 296 | 163 |
| Genito-urinary, gynecological | 273 | 127 |
| Circulatory | 183 | 122 |
| Mental, psychoneurotic | 143 | 141 |
| Musculo-skeletal | 118 | 95 |
| Allergic, endocrine, metabolic | 96 | 74 |
| Neoplasms | 24 | 9 |
| All other conditions | 150 | 138 |
| No evidence of disease | 18 | 11 |
| Failed to complete examinations | 251 | 215 |

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* In 1957 examinees in Cancer Detection Clinic at Chelsea Center are included in Diagnostic Center totals, omitted from Cancer Service totals.

† In 1958, examinees in Cancer Detection Clinic at Chelsea enter are included in Cancer Service totals, except for x-rays, and laboratory analyses which could not be separated from Diagnostic Center totals.

‡ Diagnostic service to private physicians discontinued July 1, 1958.

# Nutrition and Heart Disease

In most countries of the western world, coronary heart disease has become the leading cause of death for men 30 years of age and over.

This death rate has risen many fold since 1920. The coronary heart disease death rate is the highest in the United States. Within the United States, it is highest in New York State, and in 1955 within New York State, the New York City rate was about ten per cent higher than the rest of the State. In short, the coronary heart disease death rate in New York City appears to be higher than anywhere else in the world.

By the end of 1956, findings on the relation of diet and coronary heart disease had been sufficiently established to suggest that a public health approach might be developed on this problem. The New York City Department of Health has had, in its obesity clinics, considerable experience in inducing people to follow prescribed diets over extended periods of time. It has a trained staff fully competent to carry on long term work with large groups.

In February 1957 the Department organized an "Anti-Coronary Club" (officially "The Diet and Coronary Heart Disease Study Project) as its first effort toward the study of the relationship of diet and coronary heat disease. The main criteria for membership in the Club were that the subject should be a male adult, under 60 years of age; that he reside in New York City; that he have no other serious disease which might shortly terminate his life; and that he be physically capable and have sufficient time available during ordinary working hours to participate in the study. A previous history of coronary heart disease, obesity, hypertension, gout, low metabolic rate, diabetes or hyperthyroidism did not exclude a volunteer.

The response to the announcement of the formation of the Club was excellent and several hundred members were enrolled. There are now over 600 active members; many of whom have been actively participating more than 15 months.

The acceptable subjects were then invited to an orientation lecture at which the purpose and functions of the Anti-Coronary Club were explained in greater detail.

It was pointed out to them at this time that the Club was a research unit, not a service clinic, that they would remain under the care of their private physician and that the two would cooperate and

exchange records. There has been remarkable cooperation with the private physicians. It was further pointed out to the subjects in the 50-59 year age group that they were expected to remain in the study and follow the recommended diet pattern until they reached 65 years of age.

Those who chose to become volunteers (usually about 75 to 85 per cent of those who appeared at the orientation lecture) were then scheduled for workup by appointment. The benchmark blood cholesterol levels of all Club members were determined, in duplicate, by the Anderson-Keys modification of Abell's method, repeated at frequent intervals during a control period of one to three months, while the patient continued to follow his usual diet. The average of these cholesterol determinations was called the "benchmark level."

The patients then go on a special diet called "the prudent diet." Many, of course, have to go on a weight reduction diet and this may precede use of the prudent diet.

The first objective of the study is to learn whether free living American males can and will follow for months or years, a diet which results in appreciable lowering of the blood cholesterol.

It is not yet possible to report on detailed results of the Anti-Coronary Club study. A preliminary report on the effect of the prudent diet on 79 men, ages 50-59, of normal weight when they joined the Club, was made by Dr. Norman Jolliffe, Director of the Bureau of Nutrition of the Department, who directed the work of the Diet and Coronary Heart Disease Study Project. That preliminary report "The Anti-Coronary Club—Including a Discussion of the Effects of a Prudent Diet on the Serum Cholesterol Level of Middle-Aged Men"—was presented at the Fourteenth Annual Meeting of the National Vitamin Foundation March 3, 1959. Copies of the report are available from the Department.

In that preliminary report Dr. Jolliffe said: "Our study demonstrates that the prudent diet as defined possesses a significant cholesterol-lowering effect in most subjects and is one with a high degree of acceptability.

"We conclude that: (1) The prudent diet is practical and can be followed by the vast majority of sufficiently motivated subjects for at least six months, and (2) That this diet significantly lowers the average blood cholesterol level over a period of six months."

# Diabetes Control Program

The Diabetes Control Program continued its successful operations in Brooklyn during 1957-58 in the Brownsville Health Center. During this period 246 new diabetics and 40 potential diabetics were discovered out of 4,192 screened.

The Diabetes Control Program for the Bronx started to operate in April 1957 and has been remarkably effective. Up to December 31, 1958, 967 new diabetics and 142 potential diabetics were discovered out of 14,000 screened. The follow-up of these cases was very complete. With rare exception every case (new, known, or potential) was brought to medical treatment or supervision. The total program, including registration techniques, clinic and laboratory procedures, and follow-up, has been described as the finest ongoing program of its kind in the country. During the latter part of 1958 plans were drawn to expand in Brooklyn to a borough-wide program some time in 1959.

# Social Hygiene

There was a decided increase in reported cases of primary and secondary syphilis in 1958. During the year, 911 cases were reported, an increase of 43.5 per cent over the 635 reported in 1957. This increase was a continuation of a trend which began in 1956. A similar upward trend has been noted elsewhere in the United States, principally in large urban centers.

Despite the increase of infectious syphilis, total syphilis reports continued to decline. In 1958, total syphilis reports dropped 15.5 per cent from 15,485 to 13,081; early latent cases rose 1.2 per cent from 1,556 to 1,575; late and late latent syphilis dropped 20.4 per cent from 13,073 to 10,360 and congenital syphilis cases dropped 16.4 per cent from 281 to 235.

It is significant that only two infants were born with congenital syphilis during 1958 against four in 1957, 18 in 1956 and 34 in 1955.

Gonorrhea reports increased 12,343, up 7.5 per cent over the 11,479 in 1957. Over 85 per cent of gonorrhea reports are received from hospitals and Health Department clinics. It is estimated that the 12,343 cases reported represent only about a fifth of the actual number of infections.

The clinic activity of the Division of Social Hygiene increased slightly in 1958; when 42,576 patients were examined, an increase of 4.7 per cent. New admissions decreased 2.5 per cent from 27,251 in 1957 to 25,564 in 1958. There were 64,201 treatment visits during 1958, 2,743 fewer than in 1957, a decrease of 4.1 per cent.

One of the basic activities of the Division is locating patients with venereal diseases as soon after infection as possible to prevent further spread. Contact interviewing continues to be a most important source of case finding. These activities are competently handled by public health nurses, field investigators, and a group of trained interviewer-investigators loaned by the Public Health Service. Mainly as a result of these efforts 15,168 contacts were investigated in 1958. Of the 10,897 individuals brought to examination, 8,597 were treated for a venereal disease.

The central registry of the Division handled 48,687 venereal disease reports from physicians, hospitals, and clinics during 1958. It found 21,919 were already registered, the remaining 26,678 were new cases. During 1957, 49,541 reports were handled, of which 28,256 were new cases.

Several new programs were inaugurated by the Division in 1958 to combat the resurgence of infectious syphilis. In one program, private patients of physicians are interviewed for contacts. In Department VD clinics, patients are routinely asked to name contacts. Until recently, efforts were not made to obtain names of contacts from the patients of private physicians. Private patients are interviewed of course, only with permission of the patient's physician.

This effort began with one investigator and at the end of 1958, three more had been added. In the first three months of the program, 82 patients were interviewed, 179 contact names obtained and 12 cases of primary and secondary and eight early latent syphilis cases found. A second case finding program is "clustered testing." Patients with early syphilis are interviewed. Names of sexual contacts, of friends, fellow employees, associates and others who might have venereal diseases are obtained. The contacts are interviewed and names similarly obtained from them. In the first three months, 11 patients with early syphilis were interviewed in this way and 12 syphilitic persons were found.

A third program is "pocket testing." Cases of early syphilis are pinpointed on the map. When a concentration of cases is found in one or adjourning blocks, a blood survey is begun in that neighborhood.

A "pocket" of five cases was noted in the Staten Island area. A blood survey was started; 260 blood specimens obtained, 26 of which were positive.

House to house blood testing has also been carried out. During 1958 blood specimens were taken from 83,103 persons and 3,050 were found to have syphilis. Of the 3,050, 2,101 were found to have had adequate treatment, 466 were brought to treatment and 483 were returned for further treatment.

Cervical cancer smears are routinely taken of women attending Department VD clinics. Smears are given the Papanicolaou test. In 1958, 1,455 women were thus examined and carcinoma found in 18.

# CONTROLLING EPIDEMICS

## Poliomyelitis

Progress in efforts to curb poliomyelitis and problems connected with aseptic meningitis, influenza, and staphylococcus were the outstanding events in the fields of communicable diseases during the 1957-58 biennium.

There were fewer cases of polio reported in the 1957-58 than in any other two year period in the City's history. It is tempting to ascribe this favorable situation to the wide use of Salk vaccine. Scientific integrity, however, demands that such a judgment be held in abeyance for at least a few years longer.

There were 85 cases of paralytic polio and four deaths in 1958, and 39 paralytic cases and one death in 1957. Two of the 1958 deaths were in cases where an adequate diagnosis was not made. The increase in cases in 1958 over 1957 was also true throughout the country. So far, no adequate explanation for it has been found.

Analysis of paralytic cases by age indicates that children under five displaced the group of five to ten year olds as those most susceptible to paralytic polio. The changes are indicated in the following table, which compares the paralytic rates by age for the pre-vaccine years 1950-54 with those for the post-vaccine period 1956-58. The table also indicates how all rates have decreased in the two periods.

*Percentage Distribution of Cases of Paralytic Poliomyelitis by Age Group in the Pre-vaccine Years* 1950-1954 *and the Post-vaccine years* 1956-1958,

| *Age* | *Paralytic Rates* 1950—1954 | *Per* 100,000 1956—1958 |
|---|---|---|
| | | *Per* 100,000 |
| 0 — 4 | 23.3 | 4.5 |
| 5 — 9 | 25.4 | 2.2 |
| 10 — 14 | 16.5 | 0.7 |
| 15 — 19 | 9.5 | 0.9 |
| 20 — 24 | 4.4 | 1.4 |
| 25 — 34 | 3.9 | 0.96 |
| 35 — 44 | 0.9 | 0.26 |
| 45 | 0.1 | 0.0 |
| Total | 6.5 | 0.8 |

When the percentage of paralytic cases of each age group in the total number of paralytic cases are compared, the youngest group also leads.

*Percentage Distribution of Cases of Paralytic Poliomyelitis by Age Group in the Pre-vaccine Years* 1950—1954 *and the Post-vaccine years* 1956—1958, *New York City*

| *Age* | 1950—1954 | 1956—1958 |
|---|---|---|
| 0 — 4 | 30.2 | 47.0 |
| 5 — 9 | 28.6 | 23.0 |
| 10 — 14 | 15.0 | 6.0 |
| 15 — 19 | 8.6 | 6.7 |
| 20 — 24 | 5.1 | 5.6 |
| 25 — 34 | 9.8 | 9.2 |
| 35 | 2.7 | 2.5 |
| Total | 100.0 | 100.0 |

The drive to have adults as well as children protected from polio with Salk vaccine continued through 1957 and 1958.

The under five age group is now responsible for almost half the paralytic polio cases, while percentage of cases in the five to ten year age group and ten to fifteen age group have both decreased. The increase in the percentage of cases in the under five group appears to be largely due to the fact that more school children are immunized than are preschool children.

Immunization against poliomyelitis is now a standard procedure, together with immunization against diphtheria, tetanus, whooping cough, and smallpox for all infants attending child health stations. Children entering school are also given Salk shots. In time, the City's population should be as well immunized against polio as it is against the other four diseases.

In addition, special immunization clinics have been held in district health centers for adults who are unable to obtain Salk shots elsewhere. The Department has also supplied vaccine to prenatal clinics, to nurseries, and to ward and clinic patients in hospitals.

The City spent $1,496,720 to purchase 2,107,251 doses of polio vaccine in 1957 and 567,000 in 1958. In the two years, 2,249,500 doses were used in child health stations, schools and district health centers.

From 1955 to 1957 the Department received its entire supply from the National Foundation and the Federal Government. During those years the Department used the vaccine in its clinics and also supplied it to private physicians, hospitals, and institutions. In all, from 1955 to the end of 1958, about 5,000,000 doses of vaccine were used and distributed by the Department. Approximately 3,000,000 additional doses were bought by physicians for their private patients.

A count has been made of the number and percentage of people immunized with vaccine distributed by the Department. Of the population under 20 years of age, 79 per cent has received at least one injection, 64 per cent at least two injections and 47 per cent, three injections. Of those 20 to 40 years of age, only 11 per cent have received at least one injection. These figures do not include persons immunized by private physicians with vaccine obtained commercially.

Meanwhile, the Department, The National Foundation, and the five medical societies of New York City were steadily pushing to complete the immunization of those who failed to get shots. Immunization was particularly pressed for those in the 20 to 40 age group.

The Bureau is engaged in a study to evaluate the use of a combined diphtheria, tetanus, pertussis and polio vaccine in infants. The investigation is a cooperative study with the Bureau of Child Health, and is being carried on in the well-baby clinic at Bellevue Hospital.

If such a combined vaccine proves to be effective, it will cut down the number of injections from six to three, thus benefiting the infants as well as saving time for nurses and doctors.

## Asian Flu

New York City was hit by the world-wide influenza epidemic of 1957 late in September of that year.

The first cases of Asian influenza appeared in New York City early in August 1957. The cases were among exchange students from various parts of Europe who arrived in the City by plane and boat. The second group of exchange students among whom Asian influenza occurred came here a little later by plane from South and Central America.

All, those from Latin America and those from Europe, had classic symptoms of an acute onset with fever, great prostration, headache, general aches and pains, and a dry cough. Illness usually lasted three to four days. In three cases there was a complication of pneumonia and one died. Asian Flu virus was recovered from his lung.

Cases continued to arrive by boat and plane during August and September. Most had recovered at the time of arrival, but a few who had not were isolated in their homes, hotel rooms, or hospitals.

There was no increased incidence of respiratory diseases in the City during August. Suddenly, on the last weekend in September, police stations were flooded with ambulance calls. The number of calls was so great that police and hospitals were not able to keep up with the demand for ambulances. There were temporary delays in getting people to hospitals.

From midnight September 30, to midnight October 1, 1957, 4,582 persons requested treatment for illness. These included, ambulance calls, cases seen in hospital emergency rooms, and clinics. In the next 24 hours an additional 5,729 persons were stricken. Then, the number of new cases seen in the clinics gradually declined to an average of about 700 per 24 hours, in mid-November.

School absenteeism was another measure of the extent of the epidemic. The usual public school absentee rate is about ten per cent among approximately 950,000 pupils. On September 30, 1957, a Friday, an increase was noted, and it reached 16.4 per cent on October 3.

By October 7, it was 29 per cent; by October 14, declined to 19 per cent and at the end of October, absenteeism was about normal. Absenteeism among teachers followed the same pattern.

A third measure of the epidemic was the number of reported cases. Although inaccurate in terms of numbers it did give some indication of extent. From January 1, to July 31, 128 cases were reported. In August 98 and in September 293 were reported by physicians. In the first week of October it jumped to 913 and in the second week it reached the peak, 1,490. In the third week reported cases were 1,125 and in the week ending October 25, 939. The numbers continued to decline and the last week of November, 75 cases were reported.

Children and young adults made up the majority of cases. From them it spread to household contacts. Adults in industry and government service were only slightly affected. At the peak of absenteeism, which occurred about two weeks after its peak in children, only five to ten per cent of absenteeism was reported in a sampling of five large industries and only a negligible number occurred among police, fire and health workers.

The epidemic did not hit all parts of the City at the same time. First it was concentrated in the crowded sections, and spread to adjacent areas, gradually reaching all parts of the City.

Using various measures of morbidity as a guide, the Department finally concluded that about 800,000 persons, or 10 per cent of the total population, was hit by flu. While the exact age distribution was not available, 60 to 70 per cent of cases probably occurred in persons under 20 years of age.

Deaths are usually more accurately reported than cases, but it should be remembered that the cause given in most instances is not confirmed by laboratory data or autopsy. Among older persons, during the epidemic, death usually resulted from pneumonia, complicating the flu. In fatal cases, the illness usually lasted a week or two, and occurred mainly in those with heart disease, diabetes or cancer. In some younger persons, death was the fulminating end of a short illness, occurring within 24 to 48 hours after onset.

There were 157 deaths listed as flu by reporting physicians, and an additional 50 in which flu was the probable cause of death for a fatality rate of about .03 of one per cent. The reported fatality rate in the Far East, where the Asian flu epidemic started, was about .2 per cent. The greatest percentage of deaths here was in older persons; nearly 60 per cent occurring among those over 50. There were two deaths reported in infants. Deaths in pregnant women were about

two and a half times as frequent during the epidemic as in normal times.

Another measure of the epidemic was the excess mortality from all causes. Excess mortality from pneumonia was first noted a week after onset of the epidemic. It rose to a peak the week ending October 18, 1957 and was back to normal by the end of November. Excess total mortality was also first evident the week ending October 4, reached a peak at the end of October and was back to normal at the end of November. The mortality rose again during the first three months of 1958 to a lesser extent, although the duration of the excessive mortality was longer.

Infant deaths were not excessive during this period; their mortality continued the normal pattern. This observation is important since statements have been made that flu deaths occurred chiefly in the very young and very old. Here, they occurred largely in the old.

The value of the integrated field staff of the Bureau of Preventable Diseases combining diagnosis and epidemiology—was demonstrated during the influenza epidemic. In the early stages of the flu situation, the staff expeditiously examined suspected influenza cases and obtained throat washings and blood specimens for laboratory examination. Later all deaths, particularly in younger persons, were investigated and careful histories were obtained. Visits were made to hospitals and homes and those visits helped to establish the fact that pregnant women were at special risk.

The Department's Bureau of Laboratories did extensive work on influenza during and after the epidemic. In the course of this work, the Department Virus Laboratory isolated a strain of influenza virus which appeared to be a variant of the Asian strain.*

As soon as the first Asian flu virus was isolated by the Virus Laboratory, the laboratory started collecting samples of serums from the Department's Syphilis Serology Laboratory. This laboratory regularly receives about 650,000 blood specimens a year for examination. Those include specimens submitted for premarital tests, prenatal tests, suspected syphilis cases and for pre-employment tests. The specimens come from a fairly wide segment of the general population. The thinking was that since these blood samples represent a wide segment of the population, an examination of them for evidence of Asian flu

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* Widelock, Daniel; Sarah Klein, Lenore R. Peizer and Ogla Simonovic. "Laboratory Analysis of 1957-1958 Influenza Outbreak (A/Japan) in New York City." *Journal of the American Medical Association.* May 31, 1958.

antibodies would give an indication as to the spread of the virus infection among the population at large.

The first isolation of Asian flu virus in New York City was made on August 7, 1957. During the remainder of August and up to the middle of September, about 30 per cent of the throat washings and lung tissues examined showed the presence of influenza virus. This percentage began to decline toward the end of September, reaching its lowest point, practically zero, by mid-December. Then in mid-December a second increase occurred and reached about 18 per cent by January. By mid-January it began to decline and petered out by early February.

It was during this mid-December-January second rise that the laboratory isolated the influenza virus which differed from the earlier Asian virus. It differed in that it contained characteristics of both the Asian and the virus which had existed between 1947 and 1957 (FMI strain). Similar virus variations have since been found by other investigators in different parts of the world.

Meanwhile, testing of Serology Laboratory blood samples for Asian flu antibodies was carried on parallel with the virus isolation work.

There is, of course, a lag between infection and the development of antibodies. Thus, while the Asian flu virus was first isolated on August 7, it was not until the end of September that a significant percentage of the serums tested showed Asian flu antibodies. By late September about 4.5 per cent of the tested serums showed Asian flu antibodies. By October 18 this had risen to eight per cent. Then in the four day period, October 18-21, about 32 per cent of the samples examined had Asian flu antibodies. This is of interest because it shows how quickly and with what almost explosive speed the influenza virus spreads.

It must be emphasized that the laboratory making the antibody test had no way of differentiating between clinical and sub-clinical "cases." The presence of antibodies merely indicated "experience with the virus." Isolation of the virus, as distinguished from antibodies, was from clinical cases alone.

In other words, in actual practice, virus was isolated only from clinical cases, while antibodies were found in blood samples from among the population at large.

In January antibodies were being found in about 40 per cent of the samples examined and by the first week in March this showing jumped to 70 per cent. The antibody level continued at about 70

per cent until the middle of May wnen the percentage of individuals with Asian influenza antibodies began to decline and by mid-July 1958, it was down to about 50 per cent.

Approximately 500 throat washings and autopsy specimens were examined for virus and about 6,000 blood samples were checked for antibodies.

The first part played by the Department in the epidemic, was one of public health education. The Bureau of Preventable Diseases kept in continual touch with state, federal and international services that were gathering information on the epidemic and relayed it to physicians and laymen by notices in the medical press and information through newspapers, radio and television. The Commissioner appointed a scientific advisory committee to help the Department and keep it advised on technical matters.

An order for 290,000 doses of Asian influenza vaccine was placed. This was to be used for the immunization of City employees in essential services, so that such services might not be crippled by absenteeism. The Mayor appointed a committee to establish a list of vaccination priorities for City employees. Heading the list were the Department of Hospitals' employees. That Department received all of the first shipment of vaccine in September. Next on the list were firemen and policemen for whom special clinics were established. Only 50,000 doses were received by the time the epidemic hit the City and most of the vaccine was not received until the end of October. Part was used for other City employees and the rest distributed to hospitals and institutions for the use of indigent adults with special health hazards, particularly heart disease, rheumatic fever and pregnancy.

Close liaison was established with the Department of Hospitals, the Police and the Welfare Departments. Daily interdepartmental meetings were held where the situation was canvassed and plans of procedure adopted.

Contact was maintained with the county medical societies. Physicians were greatly irked at the beginning because patients were clamoring for vaccine and the physicians had none to dispense. It might have been wiser for the national health authorities not to urge the public to obtain vaccine from private physicians at a time when vaccine was not available.

A second complaint of physicians was that they had no clear mandate on dosage. Their national journal told them to use their judgment about whether an intradermal injection of 1/10, the recommended subcutaneous dose, was adequate or not. Clearly, if the

scientists could not agree on their advice then the practicing physicians had little other judgment to guide them. It might have been better policy for the national group to admit at the onset that the type and dose of vaccine for immunizations had not been established and to make a definite recommendation of a single dosage until further information was obtained. It was also established that the monovalent vaccine which contained 200 CCA units per ml., gave only 40 to 60 per cent protection. By December, the manufacturers ceased production of the 200 CCA unit vaccine, and substituted a 400 CCA unit vaccine in its place.

The 1957 flu epidemic had burned itself out by mid-December. There was far less dramatic clinical evidence of increased respiratory infections in 1958, as measured by hospital admissions and absenteeism in schools and industry. However, the general mortality rate was above the expected level in the first three months of 1958. There were 23,845 deaths in the first three months of 1958 when the expected range for that period was 20,800 to 21,600. The death rate for this period was 11.9; it had been expected to range between 10.4 and 10.8.

In an epidemic, suddenly thrust on a population, many errors in procedure are bound to result. The epidemic in New York illustrated that, under the leadership of the Department of Health, it was possible for the City to improvise effective measures until such time as better ones were available.

## Staphylococcus Infections

Many reports of epidemics of staphylococcus infections in nurseries for the newborn and on surgical services in hospitals have appeared in the literature during the past two years and many conferences have been held by national groups such as the Communicable Disease Center of the Public Health Service, the American Medical Association, the American Hospital Association and the American Academy of Pediatrics. Local groups have also held sessions to analyze the situation and introduce measures for immediate and long-range control.

In January, 1958, the Department established a Staphylococcus Task Force, made up of specially qualified persons from the Bureaus of Child Health, Preventable Diseases, and Laboratories. The first task

undertaken was a routine study of all newborn nurseries in the City for the incidence of staphylococcus (80.81) in infants, nursery personnel, and mothers. A total of 48 of more than 100 nurseries were surveyed during the year, and survey work will continue in 1959.

The services were visited by a survey team of obstetricians, pediatricians, a public health nurse, and a laboratory technician. The condition of the infants was noted, observations made on procedure, and nurse care. Cultures were taken from the nares of infants, mothers and personnel, as well as from lesions, if any were found. No epidemics were found at the time of the survey, and in only a few instances were infants found with even minor lesions.

Thirty of 2,673 personnel were found to be carriers, and 47 of 1,593 were found to carry strain 80,81. Positive infants found were in 10 of the 48 hospitals surveyed. Only five of the 1,151 mothers were found to be carrying strain 80,81.

In general, the results of the survey indicated that the maternity services in the City, were, on the whole, in good shape. It is felt that this survey serves two main purposes. It furnishes information as to the incidence of strain 80,81 in newborn nurseries, and helps make hospitals realize the importance of the strain and the methods which can be used to minimize its spread, once it has gained a foothold.

These surveys tell only part of the story. Infants are now discharged from hospital nurseries much earlier than in previous years, and may not develop staphylococcic lesions until they have returned home. A follow-up investigation of infants discharged from two maternity hospitals was made by telephone calls and house visits by two junior public health interns assigned to the Bureau in July and August 1958.

One of these hospitals had had a high percentage of nursery infants with the epidemic strain of staphylococcus at the time of the survey and the other had had an outbreak of pustular skin lesions in the nursery about two months before. A total of 521 households received infants during the two month period preceding the start of the investigation. It was possible to obtain information from 294 households. Clinical staphylococcal infection had occurred in 18 households. In 12, only the newborn infant had developed a lesion after discharge from the hospital; in four, only the mother had developed a lesion; in one, infant and mother had had infections. In one, infant, mother and an older sibling were involved. All the lesions but one were pustular skin lesions. One was a breast abscess in the mother.

These investigations indicated that while the nursery-infected infants in the two hospitals were a threat to the family, the extent of the spread of infection was not so great as reported from other communities. It should be emphasized, however, that only two out of more than 100 maternity hospitals were followed and that only 43 per cent of the households of discharged infants could be contacted.

Of great help in tracking down sources of staphylococcus outbreaks was a phage typing device shown above with its inventor, Sidney Goldberg, a Department bacteriologist. Mr. Goldberg was the recipient of the first Civil Service Career Award (1958) of the Hundred Year Association.

Only the cost of an extensive investigation prevented an extension of it.

The Bureau of Laboratories was able to perform especially valuable work on the staphylococcus problem. The sanitary laboratory had been using the technique of bacteriophage typing of staphylococci in studies of food poisoning outbreaks. It was thus prepared to extend the use of that technique to the study of staphylococcus cross-infections in hospitals.

At about this time one of the laboratory technicians invented a device which greatly speeded up this typing work. The device, a simple gadget, consisting of a piece of plastic and 24 two-inch stainless steel pins, makes possible the simultaneous application of 24 different phages. The standard method allows the application of only one set at a time.

The value of the device is shown in the fact that in 1957, 8,000 cultures were handled by the staphylococcus laboratory, while in 1958, the laboratory handled more than 28,000 cultures. It was the invention of this device that made it possible for the laboratory to handle the more than 28,000 cultures.

Following the surveys, a number of hospitals set up infection control committees and several hospitals which had inactive infection committees got them to work. The Bureau of Laboratories offered phage typing to hospitals for their own investigation of infection, or of outbreaks. Obviously, the Department could not do all of the infection control work for the 175 hosptials in the community. It could help and it could stimulate. That it tried and is trying to do. The Bureau of Laboratories offered hospitals two services:

(1) Phage typing of cultures isolated by the hospital, and (2) On a limited experimental basis, it began to distribute to hospitals the 24 standard strains of phage ready for use by the hospitals in doing their own typing.

The Bureau of Preventable Diseases has participated in a number of the conferences on staphylococcal infections, including one called by the Medical Society of the State of New York in Albany and another called by the Public Health Service for regions II and III at Princeton, N. J.

The conclusions reached at these two conferences and the recommendations made were similar: Committees on infections should be set up by hospitals; antibiotic drugs should not be used "prophylactically": aseptic techniques should be enforced: dry sweeping and cleaning

should not be tolerated. Research in the biology of the staphylococcus, in methods of sterilization and in proper methods of ventilation were recommended.

The Department has begun discussions with the chiefs of surgical services in a number of hospitals with a view to making surveys on surgical services similar to the ones made on maternity services.

This will help to determine the extent to which staphylococcus infections on surgical wards are a problem in the City.

# Other Communicable Diseases

## Aseptic Meningitis

An unusual number of cases of acute central nervous system infections were reported from July to September, 1958. They resembled non-paralytic poliomyelitis, but many differed in clinical and epidemiologic characteristics. Many were reported as encephalitis and others were identified simply as "aseptic meningitis syndrome."

There were 161 such cases found from June 1 to mid-September. Clinically, they were characterized by fever, signs of meningeal irritation and absence of paralysis. A few had a skin eruption or pharyngitis or both. Spinal fluid cell counts ranged from normal to an upper limit of 10,000 cells per cu.mm. Most of them were under 1,000 but several were between 1,000 and 10,000 cells per cu.mm.

Several instances were noted of multiple cases among household or other contacts as well as associations with minor febrile illnesses. Geographically, cases occurred in all parts of the City with some preponderance in the Bedford Health District of Brooklyn.

The epidemic coincided with a nation-wide upsurge of similar illnesses presenting the same clinical and epidemiologic manifestations. In most areas, an ECHO 9 virus was found as the etiological agent.

Virus isolation studies have been completed in 54 of the New York City cases. ECHO 9 virus, found in all 11 cases, was the most frequent agent. Coxsackie virus, type B 5, was found in ten cases.

A detailed study of 134 of the cases designated as aseptic meningitis was performed. It showed that an accurate clinical differentiation could not be made for cases diagnosed as encephalitis, non-paralytic poliomyelitis, or aseptic meningitis. The criteria used were age distribution, temperature range, distribution of meningeal signs, changes

in sensorium, white blood count, spinal fluid cytology and spinal fluid protein content. Some difference was noted for mode of onset in that cases diagnosed as encephalitis tended to have a more gradual onset. The significance of this is doubtful.

In view of the difficulties described, assignment to various diagnostic classifications as performed here is no doubt, to some extent, arbitrary. To circumvent the dilemma, a uniform epidemiological history form has been prepared. This form is more comprehensive than the ones presently in use for encephalitis, meningoccoccal meningitis, and poliomyelitis. It is designed to replace them and provide a more detailed account of filed data. Combined with improved laboratory methods, diagnostic accuracy should be improved. An adjunct desideratum, herewith recommended, is that all forms of meningitis be made reportable, in addition to reports of meningococcal infection, encephalitis, and poliomyelitis as now required by the New York City Sanitary Code.

## Tropical Diseases

The Division of Tropical Diseases continued to expand its activities during 1957-58, although no new clinics have been opened. The demand for services was greater than can be supplied so that there are long waiting periods in each of the three clinics. Brooklyn and Queens do not have clinics.

The number of new cases seen in 1958 exceeded 10,000 for the first time in the history of the division.

Schistosomiasis and amebiasis are still the main problems. The numbers of persons with these infections diagnosed in the clinics has increased. One of the difficulties in treating schistosomiasis is that the drug fuadin is given by injections. In children particularly, treatment should be started in a hospital. The arrangement for hospitalization of the children is not always easy to make. In 1958 a study was begun in the Bronx Municipal Hospital, in cooperation with the Albert Einstein College of Medicine, to test the drug nilodin in treatment. This drug can be given orally.

After trials with different dosage forms on the wards, a dose of 15 mg. per kilogram of body weight per day for seven days was found to be effective and free of side effects. The drug in this dosage form is now being tried on an out-patient basis. If this proves to be practical, it will be introduced in the Department clinics, and a method will have

been found to treat children with a minimum of expense, time and psychologic trauma.

A survey of Puerto Rican children in a school in the Washington Heights Health District was started to determine if it is practical to screen the children for schistosomal infection. Stool specimens will be obtained from the children and examined in the clinic without their attendance. The study should give information on the value of the procedure as a case finding method.

A number of investigations have been carried out in the clinics to test out various drugs such as fumagillin and camofom in the treatment of amebiasis. So far they have not been found to be superior to the drugs now in use.

The service has continued to give consultations to physicians and hospitals, to train technicians from hospital and other laboratories, to provide material for the teaching of students in medical schools and to give instruction to special students in parasitology.

## Typhoid Fever

Typhoid fever has been gradually disappearing from New York City. In 1957-58, 60 cases and two deaths were reported (34 in 1957; 26 in 1958 with one death in each year). The last previous typhoid death in New York City was in 1953.

## Tetanus and Hepatitis

More than two thirds of the cases of tetanus reported in 1957-58 were in drug addicts. There were 21 cases reported of which 16 were in addicts. All of the 16 addicts died; there were two deaths among the five non-addicts. In the two years, 1,208 cases of hepatitis were reported. 189 were in addicts. There were 84 deaths: four were of addicts. Most of the hepatitis deaths were in persons with serious illness who developed the disease after transfusion. It is difficult to say whether a particular death was caused by hepatitis or by the original illness.

Cases of hepatitis increased from 1948, when the disease was first made reportable, to 1955 when 1,154 cases were listed. Since then there has been a consistant decline in the number of reported cases.

## Outbreaks

The number of outbreaks remain fairly constant with 217 investigated in 1957 and 205 in 1958. Almost half were due to food poisoning or other enteric infections, the remainder being apportioned among other communicable diseases, infections in nurseries for the newborn and carbon monoxide poisoning.

# Laboratories

The Bureau of Laboratories has three major functions: performing diagnostic services for the medical services of the Department of Health, for the environmental sanitation services of the Department, and for New York City's 18,000 private physicians.

The Department's laboratories do syphilis serology, Rh and blood grouping, virus isolation and enteric bacteriology for private physicians as well as for units of the Department. Assistance to the Department's chronic disease research and control programs, includes examining blood cholesterol levels of the participants in the "Anti-Coronary Club" and blood and urine specimens collected as part of the Department's diabetes detection work.

The laboratories assist in the work of the environmental sanitation services by examining milk and milk products, shellfish and other foods, cosmetics, drugs, and other commercial products, drinking water, pool water and bathing beach water. Blood specimens of children are also tested for lead poisoning.

In addition to making diagnostic examinations, the Bureau of Laboratories is constantly engaged in developing new and better diagnostic techniques. The development of a more precise, yet practical, method for diagnosing syphilis and the production of materials for virus identification that will be more efficient than those in use are among problems studied during the biennium.

The Bureau of Laboratories also assists private physicians and professional staff members of the Department in the interpretation of laboratory reports. Under the Sanitary Code, it issues permits, inspects and supervises private laboratories.

## Virus

Isolation and identification of viruses and laboratory diagnosis of virus diseases has become one of the major services of the Bureau of Laboratories. To appreciate the real meaning of this service, we must realize that in the past the diagnosis of, for example, poliomyelitis, was dependent primarily upon clinical findings. Since the formation of the Virus Isolation Laboratory, as well as the Virus Serology Laboratory, it has been possible to rule out the diagnosis of poliomyelitis in many cases which were so diagnosed by the clinicians. Cases

of aseptic meningitis which in the past might have been called poliomyelitis, were proven to be cases of infection with Coxsackie viruses and ECHO viruses. The story of the development and spread of influenza in New York City could not have been studied without the Virus Laboratories. The diagnosis of many cases of paralysis and other diseases would have been impossible without the Virus Laboratories.

It must be emphasized that in the past, Health Department Laboratories concentrated on the diagnosis of bacterial diseases and completely ignored those of viral etiology.

The formation of the Virus Laboratories was made possible because of the introduction of tissue culture as a routine procedure in our laboratories. Viruses will grow only in living tissue. This living tissue must be maintained by laboratory units specializing in this work. Such tissue culture laboratories have been organized in the Bureau for the sole purpose of supporting the Virus Laboratories. We are now growing various tissues, including HeLa cells and amnion cells.

To identify viruses, once they have been isolated, it is necessary to have specific diagnostic serums. Each virus must be identified by its own specific serum. These serums are manufactured in animals maintained on our farm in Otisville. A close coordination, therefore, was developed between the Diagnostic Laboratories at Worth Street and the 16th Street laboratory for the production of tissues, and between the Diagnostic Laboratories and Otisville farm for the production of diagnostic serums.

The Virus Laboratories are now prepared to accept and have been accepting specimens from physicians of the private, voluntary and City hospitals for virus isolation. In addition, they have been cooperating with the epidemiologists of the Bureau of Preventable Diseases in studying outbreaks.

## Enteric Diseases

The Enteric Laboratory continues to find new types of Salmonella in the New York City area. Forty different types of Salmonella were isolated from stools. *Salmonella typhosas B, S. Typhi murium, S.Oranienburg, S.Newport, and S.Panama* were the ones most frequently encountered. Among the Shigella, *Shigella Sonnei* was by far the most frequently found. The Laboratory has also identified a few types of pathogenic *E.Coli* which have come into prominence within recent years as possible etiological agents in enteric disease.

For example, in one of the City hospitals, a large number of aged

chronic patients were involved in an outbreak in which *E.Coli* 0117 was isolated from stools, as a possible etiologic agent. A diagnostic serum was prepared and search will be made for any future appearance of this organism in diarrheal outbreaks, so as to establish its possible significance.

## Rh Laboratory

In addition to carrying out 1,263,248 tests on 80,556 specimens, the Rh Laboratory was engaged in an extensive series of experiments dealing with the specificity of the Coombs Test. The Coombs Test is a test using antihuman serum to detect the presence of blocking or monovalent antibodies in the blood of Rh negative pregnant women. After ten years of reliance upon rabbit antihuman gamma globulin as the source of reagent for the test, evidence was found that other immune sera are required for the detection of some human hemaglutinins.

Since the laboratory is not only involved in resolution of problems pertaining to blood compatibility and erythroblastosis, but is also responsible for the Coombs reagent supplied to all city hospitals, the laboratory is obliged to develop and determine the merits of new reagents for this test. After many immunological experiments, an antiserum was found which behaved as a potent Coombs reagent.

The experiments led to other interesting findings and to the study of the role of complement in the Coombs reaction. This work is of importance since it may result in ability to detect certain antibodies in sensitized individuals which normally would not be identified by routine methods.

## Syphilis Serology

Attempts are made to grow a strain of Reiter spirochete in artificial cultures. The Reiter spirochete is a nonpathogenic strain of *Treponema pallidum*. If these attempts are successful, complement fixation tests with this antigen may lead to a specific test for syphilis.

Another antigen made from virulent *Treponema pallidum* has undergone extensive tests as an antigen in complement fixation tests for syphilis. *T.pallidum* is grown in rabbit testes, harvested and extracted to provide the antigen. A special temperature controlled animal room has been set aside for this purpose in the Otisville Laboratories.

The results are being evaluated in comparison with VDRL antigen and the Treponema Immobilization Test.

*Biochemical Examinations*

When the Anti-Coronary Club was started it involved the Biochemical Laboratory in determination of cholesterol. At the start of the Anti-Coronary Project, the Blood Pressure Project was under way, which also needed cholesterol determination. Due to increased interest in the Anti-Coronary Club, the work increased so that in 1958 there were 4,992 determinations made compared with 1,897 in 1957.

Independently of the above projects, there has also been a great increase in determination of lectrophoretic patterns of serum proteins. The principal interest is in the gamma globulin fraction in serums from patients suffering from agammaglobulinemia. Physicians with patients suspected of this deficiency, used the electrophoretic pattern as proof in order to obtain gamma globulin from the American Red Cross for treatment of the patients. Requests for gamma globulin increased to 662 in 1958 compared with 332 in 1957. Physicians, who have used this service, have praised it as one of the most valuable services available from the Health Department at the present time.

*Cancer*

Two cancer tests were evaluated, the Penn Test on serum and the Nitsche Test on urine. The Penn Test is a serologic test and depends upon precipitation in positive serums, upon addition of an antigen. Ninety-nine per cent of normal individuals gave negative results and about 50 per cent of cancer patients gave positive results. Further studies revealed that positive results correlated closely with the reaction of serums against C-reactive protein. Reactions with C-reactive proteins are nonspecific and occur in serums from many inflammatory conditions. This Bureau recommended discontinuation of the experiments as the test seemed of limited value.

The Nitsche Test is a test in urine for a ferment which digests foreign protein. This ferment is excreted in the urine of cancer patients. The test, by itself, is not specific for cancer. A positive test must be considered with the results of three other tests to create an index suggestive of cancer in the patient. The laboratories were only trying to evaluate the Nitsche Test. The difficulty in obtaining satisfactory specimens on a regular basis and the very strict precautions which must maintain during the performance of the test makes it impractical to introduce it as a routine test under present circumstances.

## Otisville Laboratories

For many years the Department maintained a farm and laboratory in Otisville, Orange County, New York, where laboratory animals were raised and biologicals manufactured. A few years ago the manufacture of biologicals was discontinued. Since the bulk manufacture of biological products for human use was discontinued, the manufacture of diagnostic reagents and the breeding of small laboratory animals has been very active. Diagnostic reagents for identification of viruses are not available commercially and other reagents such as agglutinating, precipitin, and other sera are not uniformly satisfactory in the experience of this and other laboratories. Neutralizing serums were prepared against the various types of Poliomyelitis, Influenza, Coxsackie, Adeno, and ECHO viruses and new bacterial agglutinating serums were prepared for the Diagnostic Laboratory.

A new kind of antiserum for the Coombs Test was prepared in goats for the Rh Laboratory; also, various fractions of serums and other proteins injected into rabbits to obtain specific reagents for that laboratory. Routine agglutinating serums and hemolysins were prepared as before.

Assistance in producing antiserums was extended to the staffs of Columbia University and New York University Medical Schools to aid in their research problems. *Treponema pallidum* was cultured in rabbit testes for production of antigen for serologic test for syphilis. The production of horse serum, horse blood, sheep blood and other normal animal serums was higher than in 1957.

TABLE I

## EXAMINATIONS FOR DIAGNOSIS AND SANITARY CONTROL

| | 1958 | | 1957 | |
|---|---|---|---|---|
| | *Tests* | *Specimens* | *Tests* | *Specimens* |
| Throat Cultures for Diphtheria | 1,491 | 1,491 | 2,968 | 2,968 |
| Diphtheria Virulence Tests | 21 | — | 64 | — |
| Routine Smears for Gonococci | 27,106 | 27,106 | 23,667 | 23,667 |
| Routine Concentration Smear Sputums for Tubercle Bacilli | 14,750 | 14,750 | 16,865 | 16,865 |
| Cultures for N. Gonorrhea | 23,586 | 23,586 | 22,715 | 22,715 |
| Cultures for M. Tuberculosis | 166,612 | 68,993 | 182,276 | 73,094 |
| Cultures for Enteric Bacteria (Stools and Foods) | 7,238 | 6,707 | 6,712 | 6,133 |
| Blood Specimens for Agglutination Tests (Typhoid, Paratyphoid, Brucella, Weil-Felix) | 12,907 | 2,143 | 13,949 | 2,426 |
| Miscellaneous Nonroutine Examinations | 2,948 | 942 | 2,757 | 946 |
| Specimens for Rabies | 1,058 | 529 | 902 | 451 |
| *Serologic Examinations* | | | | |
| Special Serology (Echinococcus, Heterophile, Trichina and Amebiasis) | 10,345 | 6,848 | 10,093 | 7,068 |
| Viral and Rickettsial Diseases | 9,097 | 3,071 | 9,367 | 4,188 |
| Blood Specimens for Rh Typing and Blood Grouping | 1,263,248 | 80,556 | 999,224 | 77,559 |
| Serology of Syphilis: | | | | |
| Blood Specimens for Serologic Tests for Syphilis | 688,602 | 590,225 | 736,494 | 613,589 |
| Spinal Fluids for Serologic Tests for Syphilis | 6,476 | 3,524 | 6,418 | 3,401 |
| *Virus Isolation and Identification* | — | 1,377 | — | — |
| *Infections of the Central Nervous System* | | | | |
| Specimens for Cultures for Identifications and Serologic Typing | 3,475 | 644 | 1,453 | 352 |
| Antibiotic Level and Sensitivity Tests | 43,772 | 3,446 | 48,135 | 14,740 |

TABLE I (*continued*)

## EXAMINATIONS FOR DIAGNOSIS AND SANITARY CONTROL

| | *January 1st Thru December 31st* | | | |
|---|---|---|---|---|
| | 1958 | | 1957 | |
| | *Tests* | *Specimens* | *Tests* | *Specimens* |
| *Tropical Disease Diagnostic Service, Lower East Side, Morrisania, and Washington Heights Health Centers* | | | | |
| Total Examinations | 61,173 | — | 60,419 | — |
| *Biochemical and Immunochemical Laboratory* | | | | |
| Total Examinations | 6,415 | — | 2,882 | — |
| *Chemical Laboratory* | | | | |
| Total Samples Reported (Exclusive of Pasteurization Samples) | — | 18,247 | — | 17,950 |
| Pasteurization Samples | — | 13,733 | — | 14,392 |
| *Sanitary Examinations* | | | | |
| Dairy Products | 23,722 | 12,380 | 24,155 | 12,742 |
| Foods and Food Poisonings | 66,633 | 2,942 | 37,559 | 1,906 |
| Shellfish | 9,751 | 1,493 | 9,935 | 1,669 |
| Staphylococcus Phage Typing | 26,851 | 26,780 | 28,894 | 8,715 |
| Waters | 17,764 | 8,644 | 12,330 | 10,957 |
| *Cancer Detection-Prevention, Four Units at Various Locations* | | | | |
| Laboratory Examinations | 8,713 | — | 8,985 | — |
| *Cancer Special Projects, Five Units at Various Locations* | | | | |
| Laboratory Examinations | 64,858 | — | 25,256 | — |
| *Laboratories in Connection With Clinics, Eleven Units at Various Locations* | | | | |
| Laboratory Examinations | 76,729 | — | 66,500 | — |

TABLE II

## DIAGNOSTIC REAGENTS PRODUCED IN THE BUREAU OF LABORATORIES

*(Quantities in ml.)*

| | *January 1st Thru December 31st* 1958 | 1957 |
|---|---|---|
| Antiserum for Protein and Polysaccharide Fractions | 19,580 | 456 |
| Antiviral Serums | 8,765 | 2,823 |
| Antismallpox Calf Serum | 385 | — |
| Coombs Serum | — | 720 |
| Goat Antihuman Serum | 2,330 | — |
| Hemolysin | 1,557 | 1,280 |
| Leptospira Antiserum | 560 | — |
| Normal Calf Serum | 1,640 | — |
| Normal Chicken Blood, Alsevers | 2,330 | 1,645 |
| Normal Goat Serum | — | 338 |
| Normal Guinea Pig Blood, Alsevers | 549 | 420 |
| Normal Guinea Pig Serum | 152 | — |
| Normal Horse Blood, Citrated | 868,150 | 773,650 |
| Normal Horse Serum | 948,200 | 771,500 |
| Normal Rabbit Blood, Defibrinated | 50 | — |
| Normal Rabbit Serum | 4,906 | 5,725 |
| Normal Sheep Blood, Alsevers | 44,050 | 18,300 |
| Normal Sheep Blood, Citrated | 39,850 | 70,550 |
| Normal Sheep Blood, Defibrinated | 117,100 | 88,425 |
| Normal Sheep Serum | 380 | 1,415 |
| Rabbit Antisera for E. Coli Strains | — | 415 |
| Salmonella Antiserum | 1,415 | — |
| Treponema Antigen | 12,490 | 15,750 |
| Trichinella Spiralis Larvae | 77 | 76 |
| Smallpox Vaccine (Special Study) | 9,120 | 4,160 |
| *Foot of East 15th Street* | | |
| Blood Grouping Sera | 59,785 | 63,635 |
| HeLa Cells | 438,950 | 439,200 |
| Human Amniotic Cells | 118,600 | 53,800 |
| Miscellaneous Reagents | 34,320 | 11,990 |

# NURSING

In delivering the actual services of the Department to the people of the City, public health nurses are the key figures. As in previous years the Department still suffers from the continuing and increasing shortage of nurses.

This is not simply a matter of better salaries, though that is important, but even more basically the shortage is due to a lack of available, well qualified persons.

During the last two years efforts of the Bureau of Nursing have been directed to ways of improving service by utilizing all nursing resources in the City, voluntary as well as official. Meetings and conferences are organized and attended by representatives of other nursing and health agencies. At these sessions ways in which other agencies could contribute to the goal of better health for New Yorkers were explored.

As a result of one such session, the Nursing Sisters of the Sick Poor in Brooklyn took the responsibility of furnishing nursing service in nine parochial high schools. This was a need which the Department itself had been unable to meet. At another two day institute, attended by nearly 500 nurses, better case finding, earlier registration for prenatal care, and practical means for improving clinic and ward nursing services were considered. Those attending included not only public health nursing agencies but nurse representatives of practically every municipal and voluntary hospital in the City which operates maternity services.

Because of the short supply of public health nurses, the Department has contracted with visiting nurse associations to handle some home visits. This contract nursing service was expanded during 1957-58. In the two year period approximately 40,000 visits were made under this system. These included visits to pregnent woman considered "at risk"; to infants, including prematures; to handicapped children; and to some tuberculosis patients who were being cared for at home.

The Bureau of Nursing staff in 1958 averaged 615 full time nurses, 96 part time nurses, and 400 full time public health assistants.

This included 604 Department of Health nurses, nine nurses assigned to the Red Hook—Gowanus Community Nursing Service by the Visiting Nurse Association of Brooklyn and two practical nurses assigned to the Hospital Home Care Service in Queens by the Department of Hospitals.

Compared with 1957 this represents a decrease of 49 full time nurses, an increase of 12 part time nurses, and an increase of 25 public health assistants.

Time spent by nurses on various services is shown in Table 1; by public health assistants in Table 2.

Staff training also drew special attention during the two years. In the two years, 40 staff nurses completed training which made them eligible for the public health nurse category. During the two years, scholarship aid was given to 261 nurses, supervising nurses, and district supervising nurses.

Before 1957 public health nurses tried to make home visits to all first born infants whose mothers were delivered on ward service in municipal hospitals. The Department learned about each of these infants through their birth certificates. But often it was six or eight weeks after the child was born before the name reached the nurses who were to make the visits. All too often the family had moved or for some other reason was not able to be reached. A plan was developed whereby while the mother was still in the hospital, each mother on ward service is urged to plan for regular medical supervision for her baby. She is informed about the services given in Department Child Health Stations and told about the Child Health Station nearest her home. She is given a post card to send in asking for an appointment for her baby.

This has resulted in earlier medical care for more children than was possible under the previous plan. This system has saved thousands of nursing hours previously spent on fruitless home visits.

The plan was at first confined to a few City hospitals for a try-out period. It is now in operation in all municipal and some voluntary hospitals. Hospitals which think that a mother needs immediate help can arrange for her to get it.

TABLE 1

## NURSING TIME ACCORDING TO SERVICE

1957, 1958

| | *Number of Hours* | | *Percentage Distribution* | |
|---|---|---|---|---|
| | 1957 | 1958 | 1957 | 1958 |
| In clinics | | | | |
| Child health | 135,266 | 126,409 | 13.6 | 13.6 |
| Tuberculosis | 73,763 | 67,914 | 7.4 | 7.3 |
| Social hygiene | 24,155 | 23,550 | 2.4 | 2.5 |
| Working paper | 4,715 | 3,961 | 0.5 | 0.4 |
| Nutrition | 3,021 | 2,699 | 0.3 | 0.3 |
| Anti-coronary | — | 1,574 | — | 0.2 |
| Adult diagnostic | 4,466 | 4,107 | 0.5 | 0.4 |
| Cancer detection | 2,883 | 2,919 | 0.3 | 0.3 |
| Adult Counselling | 664 | — | 0.1 | — |
| Diabetic | 362 | 4 | | |
| Cardiac | 328 | 339 | | |
| Orthopedic | 149 | 167 | | |
| Anti-rabies | 37 | 25 | | |
| Immunization at H. C. | 5,863 | 1,250 | 0.6 | 0.1 |
| Total clinic time | 255,672 | 234,918 | 25.8 | 25.3 |
| In school | | | | |
| Nursery | 799 | 674 | 0.1 | 0.1 |
| Summer play | 145 | 165 | — | — |
| Elementary | 348,718 | 336,271 | 35.2 | 36.2 |
| Secondary Vocational | 18,831 | 18,600 | 1.9 | 2.0 |
| Academic | 14,243 | 12,841 | 1.4 | 1.4 |
| Polio immunization | 2,935 | 1,370 | 0.3 | 0.2 |
| Total school time | 385,671 | 369,921 | 38.9 | 39.9 |
| Home and related field visits | 122,802 | 117,178 | 12.4 | 12.6 |
| Premature baby transport | 5,209 | 5,210 | 0.5 | 0.6 |
| Office | 88,821 | 84,202 | 8.9 | 9.1 |
| Inservice training, meetings, conferences | 82,869 | 69,540 | 8.4 | 7.5 |
| Special studies: | | | | |
| Tuberculosis nursing | 228 | — | — | — |
| Manhattan Cardiac Program | — | 646 | — | 0.1 |
| Travel | 47,095 | 44,092 | 4.7 | 4.7 |
| Other | 2,610 | 2,038 | 0.3 | 0.2 |
| Grand Total | 991,981 | 927,745 | 100.0 | 100.0 |

TABLE 2

PUBLIC HEALTH ASSISTANT TIME ACCORDING TO SERVICE
1957, 1958

| *Service* | *Number of Hours* | | *Percentage Distribution* | |
|---|---|---|---|---|
| | 1957 | 1958 | 1957 | 1958 |
| In clinics | | | | |
| Child Health | 152,582 | 172,710 | 30.3 | 31.1 |
| Tuberculosis | 76,786 | 77,125 | 15.9 | 13.9 |
| Social hygiene | 27,897 | 30,054 | 5.4 | 5.4 |
| Eye | 29,743 | 29,707 | 5.8 | 5.4 |
| Working paper | 4,972 | 5,011 | 1.0 | 0.9 |
| Nutrition | 5,592 | 5,694 | 1.1 | 1.0 |
| Anti-coronary | 501 | 2,395 | 0.1 | 0.4 |
| Adult diagnostic | 5,964 | 5,467 | 1.2 | 1.0 |
| Cancer detection | 5,617 | 5,958 | 1.1 | 1.1 |
| Adult counselling | 185 | — | — | — |
| Diabetic | 2,621 | 3,967 | 0.5 | 0.7 |
| Tropical disease | 8,558 | 8,930 | 1.7 | 1.6 |
| Otology | 376 | 397 | 0.1 | 0.1 |
| Anti-rabies | 4,262 | 4,720 | 0.8 | 0.8 |
| Immunization at H. C. | 33,196 | 19,425 | 6.5 | 3.5 |
| Total clinic time | 361,852 | 371,558 | 70.5 | 66.9 |
| In schools | | | | |
| Elementary | 94,708 | 128,333 | 18.4 | 23.1 |
| Secondary | | | | |
| Vocational | 3,658 | 6,347 | 0.7 | 1.1 |
| Academic | 2,884 | 5,425 | 0.6 | 1.0 |
| Polio immunization | 1,489 | 1,031 | 0.3 | 0.2 |
| Total school time | 102,739 | 141,136 | 20.0 | 25.4 |
| Office | 19,684 | 21,590 | 3.8 | 3.9 |
| Inservice training, meetings, conferences | 19,612 | 10,881 | 3.8 | 2.0 |
| Travel | 8,302 | 8,780 | 1.6 | 1.6 |
| Other | 1,244 | 1,223 | 0.3 | 0.2 |
| Grand Total | 513,433 | 555,168 | 100.0 | 100.0 |

# SOCIAL WORK

The bulk of the work of the Department's social work consultants involved tuberculosis patients and their families, and handicapped children and their families. In the different health districts the greatest number of individual patients were referred for social work help because of problems which interfered with their social, emotional and vocational rehabilitation; where the doctor and public health nurse had been unable to gain their cooperation in accepting hospitalization; where there was difficulty in getting the patient to remain under clinic supervision; where the patient with tuberculosis had problems related to care of children in the family and where housing problems were extremely difficult. The help of social work consultants was also frequently invoked to plan with the Department of Welfare, around the special needs of the tuberculous patient and his family.

Social work help was also given to families using the Department's child health services and to social hygiene patients.

During the 1957-1958 biennium 6,465 new individuals were referred to the social work consultant staff. Another 2,446 persons were carried over from the previous biennium, making a total of 8,911 individuals helped in the two year period. There were 45,128 services provided. These included: information services, 5,378; short-contact casework services, 9,921; consultation to other professional persons, 25,614; letters, 2,296; and social evaluations, 1,919.

Social work consultants participated in standard-setting surveys made by the Bureau for Handicapped Children and the Division of Maternity and Newborn Services. In the two years, 171 hospitals and similar institutions were inspected by teams which included a social work consultant. The consultant staff also took part in planning for services within the Department of Health, with other community agencies, in staff meetings, and the various educational activities of the Department. Problems which drew the special interest of social workers include: the unmarried mother, the teenager with venereal disease, narcotics addicts, and alcoholics. Efforts to provide maximum coordination of services for multiple-problem families drew special attention.

Special studies in which social work consultants had a part in the preliminary planning and which are now being carried out, include a study by the Community Council of young unmarried mothers; U. S. Public Health Service study of "recalcitrant tuberculosis patients"; The American Social Hygiene Association study of teenagers with venereal disease; and the Corona Rehabilitation Project for older persons.

Gov. Averell Harriman, Commissioner Baumgartner, N. Y. State Health Commissioner Herman E. Hilleboe and Manhattan Borough President Hulan E. Jack cut the tape to open the Health Show at the New York Coliseum, Aug. 6-23, 1958. (l. to r.)

# HEALTH EDUCATION

The Bureau of Public Health Education strives to develop understanding and initiative on health matters by New Yorkers so that they will work together to improve their personal and community health. The staff constantly seeks more effective ways to keep the public informed on health topics. An outstanding example was the production of a Health Show at the New York Coliseum during a two week period in August, 1958. That was the first time since the 1939 World's Fair that a public exposition in the City had been devoted to health. More than 50,000 people paid admission to see the show.

The Health Show was a City-wide report of progress in public health over the last twenty years. It told the story of how medical science and public health are helping people to live longer and live

more productive lives. Exhibits stressed what individuals and families can do to achieve and protect their health. More than 100 organizations had exhibits in the Health Show: Federal, State and City departments, voluntary and professional agencies, pharmaceutical firms and other commercial companies. The Department had four exhibits: "Radiation Hazards," "Obesity," "Poison Control," and "Maternal and Child Health Services." More than 50,000 pieces of literature were distributed by the Department. The leaflets and pamphlets described Department services and gave information on health programs such as accidental poisoning, child care, nutrition, and communicable diseases.

Late in 1958 a separate radio and television unit was set up in the Bureau of Health Education. Its purpose is to serve radio and TV stations and programs with interesting and authoritative information on medical matters and health education. At the same time the unit distributes Department news and health education material which it believes will interest the public. Much of the effort of this unit went into plugging Salk vaccine.

Material furnished by the unit was widely used on both news and other types of radio and TV programs. A number of members of the Department's staff have appeared on a wide variety of programs to talk about various aspects of health and describe services and activities of the Department. The Commissioner of Health has been in wide demand among radio and TV stations. She spoke numerous times on news programs, forums, and other types of shows.

Because of the City's large Puerto Rican population, special stress was put on furnishing material and speakers for stations which carry programs in Spanish.

One TV station, WOR-TV, ran a show entitled, "Health and Medicine" from April to October, 1958. The Department furnished almost all the material for this show. The material consisted of film clips from the Bureau of Health Education film library, speakers and information and data which was worked up by the station.

All news releases issued by the Department are fed to radio and TV through the new unit. Spot announcements and brief health messages on matters in the news are also distributed by the unit, and widely used by the stations.

The Fund for the Advancement of Education financed a closed-circuit television project in the John Lovejoy Elliott Houses, a New York City Housing Authority project, as a study in communication technique. The Board of Education, through the Hudson Guild

Neighborhood House, and the Department of Health cooperated in the project. Some 1,100 families, tenants in the housing project, were reached over the closed circuit. In cooperation with the district health officers, the Bureau of Health Education obtained speakers and prepared material and scripts for weekly, half-hour health broadcasts.

In cooperation with the Kings County (Brooklyn) Medical Society, a series of monthly health broadcasts were given over station WEVD. This series was later picked up by the Voice of America for re-broadcast in Germany.

For many years a fundamental effort of the Bureau of Health Education has been radio broadcasts over station WNYC, owned by New York City. These broadcasts, which have a loyal and steady audience, continued during 1957-58. One series of broadcasts covered health topics of interest particularly to housewives and mothers, such as "Choosing the Right Day Camp for your Child," "Traveling with Baby," "Protect Your Family from Tuberculosis," "Polio—A Danger to Young Adults." Another was devoted to the interests of the middle-aged and elderly. In addition to preparation of scripts, guest speakers were obtained from various organizations who work in this field: a professor of sociology from Wagner College spoke about "the older adult yesterday and today": a psychiatrist from the New York State Department of Mental Hygiene discussed the psychiatric approach to the elderly in our society; the associate director of Federation Employment and Guidance Service told about rehabilitating people of advanced age who have mental and physical handicaps; the president of the Citizens Planning and Housing Council of New York City discussed what is being done and can be done about the housing needs of the elderly.

In a number of health districts, the local neighborhood papers were used to carry Department messages and news of Health Department activities in the area. Some of the metropolitan newspapers publish sections for different boroughs. Several of these borough sections cooperated with the Health Department: for instance, the Brooklyn section of the Journal American co-sponsored with the Health department, a successful health forum at the Brooklyn Academy of Music, while the Brooklyn section of the World-Telegram and Sun publicized a cancer prevention clinic in the Williamsburg district health center.

Health news and special articles, some of them written by health educators, were placed in such neighborhood newspapers as the Canarsie Courier, Town and Village, East Side News, the Bay Ridge Record, the Bay Ridge Home Reporter, the West Side News, and the Chelsea-

Clinton News. Such publicity was of particular value in promoting the use of Salk vaccine.

Health education materials prepared by the Department, such as pamphlets, leaflets, photographs, slides, posters and exhibits, were widely used by labor, industry, P.T.A.'s, schools and other community groups.

More than 4,000,000 pieces of literature were distributed to New Yorkers during this two year period. The literature gave general information on such topics as polio, the venereal diseases, tuberculosis, communicable diseases of childhood, the common cold, cancer, heart disease, arthritis, nutrition, child care and development, and child safety.

A great deal of the effort of the Bureau of Health Education and its staff went into the educational aspects of the Department's work on polio immunization, tuberculosis and diabetes case finding. The Bureau prepared and distributed printed material on polio immunization and participated actively in every mass chest x-ray campaign conducted by the Department. It put considerable effort into helping in the Department's diabetes case finding activities. In short, health educators acted as recruiting agents in diabetes and tuberculosis case finding campaigns and in getting the people to be immunized against polio.

Aware that older persons have their own health problems, interests and needs, the Bureau carried on special health programs for the elderly. Health educators offered talks and demonstrations on nutrition, home economics and general health topics of special interest to the aged. A senior citizens' group organized in Cumberland Hospital was so stimulated by the monthly education programs held for them that they formed a service corps for hospital duty. These elderly people undertook to visit patients, do clerical work, and perform other useful tasks at the hospital.

Emphasis was continued on activities to promote understanding about health among New Yorkers who had recently arrived from Puerto Rico and other Spanish-speaking areas. Radio broadcasts were prepared and given in Spanish. Meetings were arranged at which Spanish films on health topics were shown and Spanish lecturers and discussion leaders spoke. Spanish interpreters were assigned to district health center and child health stations. Health literature in Spanish was made widely available. Film trailers in Spanish were prepared for motion picture houses in predominantly Spanish-speaking areas.

The special skills of the staff of the Bureau of Public Health

Education have been utilized by other City departments. Assistance with exhibits, films, training, photography and other services was given to the Departments of Personnel, Welfare, Correction, Hospitals, to the Housing Authority, and the City Administrator.

A health educator, assigned to the office of the Director of Training, is responsible for reception of and programs for foreign visitors interested in Health Department activities. Training activities were arranged for many International Cooperation Administration and World Health Organization fellows in health education. Other students from colleges and universities were provided training and observation opportunities.

# RECORDS AND STATISTICS

The basic functions of the Bureau of Records and Statistics of the Department of Health are: (1) To collect and register records of births and make certified copies available to those needing them; (2) To tabulate and analyze these and other vital statistics of the City; (3) To advise various bureaus and units of the Department on how to collect, tabulate and analyze statistics about their services and work; and, (4) To aid Department staff members in working out the statistical aspects of special studies and research projects.

Increasing emphasis within the Department on the program of research and evaluation has added to the work-load of this Bureau. To strengthen the statistical service, members of the staff, above the initial grades, are now required to have a public health background.

During the biennium, 680,327 searches of deaths and marriages were made as against 676,949 in 1955-1956. Paid searching and transcript work produced a revenue of $1,106,929 in 1957-1958. There were 125,473 free services for official purposes by New York City and State agencies and the Veterans Administration. The Department was called upon to give confidential medical reports of deaths and births needed for numerous scientific investigations. During 1957-58, 36 requests for such information were approved for such studies as epidemiological follow-up of persons who worked as radium dial painters in New Jersey, the relationship of fertility to attitudes toward family size, differential mortality among members of religious orders, the epidemiology of testicular neoplasms, the effects of x-irradiation on childhood neoplasia, the relationship of prenatal factors on psychiatric conditions among children, the effect of working on cardiac patients with congestive failure as well as the determination of end results among patients treated in hospitals or by private physicians. In addition, the Department provided access to its records for the National Academy of Sciences to obtain information regarding white male twins born between 1917 and 1927. Such records are needed for genetic studies. Such confidential information is made available to researchers only on approval by the Board of Health.

The Bureau of Records and Statistics participated in numerous studies within the Department and in cooperation with outside groups and agencies. Some of those projects are briefly described below.

Starting in January, 1957, selected causes of death (tuberculosis

of the respiratory system, cancer of the respiratory system, asthma, pneumonia and bronchitis, and home accidents) are being tabulated on a daily basis for studies whether there is any correlation between mortality from these conditions and variations in the daily levels of air pollutants.

A cooperative study was started with the Health Insurance Plan of Greater New York to compare perinatal mortality among women covered by the Plan with that for the entire City. A report on the initial results was published. The study continues to investigate further the questions raised in that report.

A special study* was undertaken of infant mortality by month of first visit for prenatal care. This study indicated that highest infant mortality rates occurred among the group whose mothers had had no prenatal care. However, the data also indicated anomalously that the group whose mothers started prenatal care in the third trimester had a lower mortality experience than the infants of those who had care earlier in pregnancy. Because parity, age of mother and ethnic group may have some influence on the start of prenatal care as well as an influence on mortality among infants, further investigations are being made which will include investigation of the influence of these factors.

The fact that prolonged heat waves in New York City invariably produce excessive mortality during the period of such heat waves evoked interest in the general question of the influence of weather conditions on mortality. Eleven years of daily mortality figures have been assembled and plans have been made for the analysis of these data in conjunction with daily information on temperature, barometric pressure and humidity.

A disturbing trend has been evident in New York City in the increasing proportions and numbers of out-of-wedlock births. An analysis of these data for the years 1955-1957 is in progress to determine the impact of such births from a health point of view.

The live births are being analyzed by age of mother, ethnic group and selected factors which have a bearing on the health of the infant and comparisons will be made for the "in-wedlock" live births. Infant mortality among these two groups will also be compared by ethnic group and other pertinent factors. The limitations of the data as col-

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* Shapiro, Sam, Louis Weiner, Paul Densen. "Comparison of Prematurity and Perinatal Mortality in a General Population and in a Prepaid Group Practice Medical Care Plan." *Journal of the American Public Health Association,* 48: 2, 170-186, Feb., 1958.

lected from the birth certificates are clearly recognized, but despite such weaknesses, it is hoped that valuable conclusions may be inferred. One of the limitations is the probable incomplete recognition of out-of-wedlock births. A recent check-up on the number of such births to mothers 12-16 years of age during the school year ending June, 1957 indicated that the Health Department figures are lower than those compiled by the Board of Education.

A multiple birth roster has been established. It is intended as a source of subjects for investigation by research workers in genetics, child development, and related fields. All multiple deliveries resulting in at least two live births are included in the roster. The roster file includes a copy of the actual certificate of birth, the routine statistical punch card and the index card. The roster will be kept up-to-date by feeding in information regarding deaths during the first year of life, adoptions, and any information collected by researchers. After a number of years have elapsed, an evaluation will be made to determine whether continuation is warranted.

A study of the effect of "conditions present during pregnancy" is in progress. It is planned that the study will show the incidence of various conditions, possible relationships between conditions and congenital deformities, fetal and infant mortalities, and maternal mortality. Preliminary tabulations by age of mother, parity, ethnic group, gestation, and attendant at birth have been completed.

# DISTRICT SERVICES

## Borough Decentralization

One of the major recommendations made in 1952 by the Mayor's Committee on Management Survey dealt with strengthening the program of decentralized public health administration in the New York City Health Department. A major step in the implementation of this recommendation occurred in 1954 when administrative responsibility for all of the Department's public health activities in Brooklyn was vested in a Borough Director, who in turn was directly responsible to the First Deputy Commissioner. The Brooklyn Borough Director, with the aid of a staff of consultants from each of the technical service bureaus, was also charged with the responsibility for the establishment of close and productive working relations with official and non-official agencies which function in Brooklyn in fields allied to or affecting the health and well-being of that borough's citizens.

The experience gained in Brooklyn rapidly and clearly indicated that this pattern of public health administration in New York City worked well and with marked success. It was found that not only were health programs of borough-wide and multi-district distribution benefited, and cooperative programs with other agencies encouraged and facilitated, but that advantages also accrued to the health programs contained within individual health districts of the borough. The health officer and his staff in each health district constantly turned to the borough office staff for consultation and guidance in developing and operating health programs within the district. At the same time every effort was made to preserve and foster the local district health officer's responsibility for developing and administering the public health program within his district.

This successful experience in Brooklyn led to the creation in 1955 of a Borough Director in the Bronx. Again similar encouraging results were encountered. The next extension of this pattern of public health administration came in 1958 when a Borough Director and staff were established in Queens. Early experience in that borough paralleled that in Brooklyn and the Bronx. Since health department activities in Staten Island have long since been under the direction of a local health officer, the biennium saw the entire city under a type of decentralized administration control.

## Building Program

Construction of new health center buildings continued at a satisfactory pace during the two year period. The Sunset Park District Health Center in Brooklyn was completed in January 1957. This replaced inadequate rented quarters located for many years in a loft. In addition to dental, chest, eye and child health services, the new building temporarily provides quarters for the outpatient department of the Lutheran Medical Center. This close proximity of hospital and health services offers potentialities for the joint development of health and medical programs by the hospitals and health centers. The opening of this health center, with its large and up-to-date chest clinic, made it possible to carry out intensive TB survey programs in the Bay Ridge and Sunset Park health districts.

Three center buildings are presently under construction: *Morningside Health Center,* in the Central Harlem Health District, Manhattan: *Bushwick District Health Center,* Brooklyn; and *Riverside District Health Center,* Manhattan. It is expected that the Morningside Health Center will be completed in the latter part of 1959, Bushwick in early 1960 and Riverside in 1961.

Preliminary and final plans for the addition to the Jamaica District Health Center, Queens, were approved. This addition will ease congestion and permit the addition of much needed services in this fast-growing borough.

Plans for a new Public Health Laboratory are progressing steadily. The site has been acquired, architect's agreements approved by the Board of Estimate and the study phase progressing according to schedule. It is hoped that final plans and specifications will be completed during 1959 and construction started shortly thereafter.

## Residency Training Program

The Department of Health continued to provide residencies in preventive medicine and public health approved by the Council on Medical Education and Hospitals of the American Medical Association, and recognized by and approved for training by the American Board of Preventive Medicine. This program was greatly strengthened through the appointment of a Director of Professional Training for all of the Department's training activities. The number of applicants for residency appointment has increased considerably as compared to previous years. This heightened interest in our Residency Program

is unique since no other health department in the country is experiencing this, with the possible exception of California. During 1957-58 nine physicians participated in this Residency Training Program, which covers two years, eight months of which are spent in a school of public health working towards a master's degree in public health.

### Consolidation of Districts

A preponderance of new middle and high income housing has been appearing in the Kips Bay District and has resulted in a changing population which has little need for direct services. This led the Department to decide in 1958 to consolidate the East Harlem and Kips Bay Health Districts. The Kips Bay nursing and administrative offices were moved to East Harlem. The Kips Bay Chest Clinic was closed and the major portion of its case load assigned to East Harlem. The Child Health Station, the Attitude Study, the Dental Clinic and the Coronary Disease Study continue to function in the Kips Bay Center. The Visiting Nurse Service also combined its Kips Bay and East Harlem offices, thereby giving up its quarters in the Kips Bay District Health Center.

### Glaucoma Testing Program

In December 1958 the Department started a glaucoma screening program in the Astoria District in Queens. Plans are being drawn for a permanent type of program both in the Bronx and in Queens to start some time in 1959. The Bronx program will be jointly sponsored by the Department and the Lighthouse.

### Multi-Agency Approach

In view of the emphasis currently given to the multi-agency approach to the multi-problem family, the case study program at East Harlem deserves mention. This program is conducted in cooperation with the Department of Preventive Medicine of the New York Medical College. Some 10 multi-problem families participate each year. Each family receives an intensive three week work-up by a pair of third year medical students. The students' presentation is discussed not only by fellow students and members of the faculty but also by representatives of the various agencies concerned with providing service for these families. The information made available by the students is

incorporated into the Health Department's records and the recommendations are reviewed and implemented, if approved.

### Corona Rehabilitation Program

Plans were completed during the period of this report for a program to be launched early in 1959 in the Corona District of Queens. It will be a joint effort of the Health Department, the Hospitals Department, Welfare Department and the Community Mental Health Board. The aim of this project is to locate residents in this area who are physically handicapped and to provide rehabilitation services through Elmhurst Hospital and private physicians. The Visiting Nurse Service will also participate in this program. The Queens Medical Society is also providing essential support. Included in this program will be a system of providing specialized rehabilitation services in the patient's home. This project has received a financial grant from the Office of Vocational Rehabilitation.

# ADMINISTRATIVE SERVICES

In the 1957-58 biennium the New York City Department of Health averaged 5,400 employees, carried on 381 activities in 226 premises with appropriations totaling $39,799,590 for the 1956-57 and 1957-58 fiscal years. Operating a health organization of that size requires not only efficient business and administrative organization, it also requires sound morale and an understanding of their work on the part of employees. Some measure of employee morale and attitudes towards work can perhaps be obtained by a look at the Employees' Suggestion Program. A worker who examines his job for the purpose of finding better ways to do it, and then makes suggestions for improvement, is certainly interested in his work. His morale is probably good. The suggestion he makes may not win him an award, but it is evidence of intelligent interest in his job.

The Employees' Suggestion Program in the Department of Health is part of the City-wide suggestion program, operated in all Departments of City Government. Since the start of that program in 1952, the Department of Health, year after year, took and held first place among Departments of comparable size in the number of suggestions submitted and awards won. Awards ranged from certificates of merit to $500 prizes. Throughout the City, eight $500 prizes have been handed out, and Health Department workers took three of them. Health Department workers also won 86 other awards and 25 certificates of merit. It is estimated that the suggestions adopted saved the City approximately $60,000 in operating and other costs.

## Audit and Accounts

All Department funds are handled and appropriations drawn on through the Department's Bureau of Audit and Accounts. Income from permits and other fees collected by the Department also go through this Bureau.

In addition to appropriations from the City, the Department also obtains funds from foundations and similar sources to finance special projects and studies and Federal funds are also occasionally made available for such activities as venereal disease case finding programs and inservice training. Private funds, from foundations and like sources, for the two year period totaled $162,352.

The Health Department is not considered a revenue-producing agency of the City government. However, some revenue comes to the City through the Department for such services as issuing permits and licenses, sale of biologic products manufactured by the Bureau of Laboratories, inspection fees and transcripts of records. In the 1957-58 period, receipts totaled $3,496,090.89.

### Permits

The Bureau of Permits issued 149,246 permits during the biennium. Of these, no fee was charged for 5,957. For the remaining 119,817 permits, $1,923,446 in fees was collected.

### Maintenance

The Bureau of Maintenance is the departmental housekeeper. During the two years covered by this report 226 different premises were maintained by the Department, some owned by the City and others rented. They ranged from District Health Centers to laboratories and eight store-front Child Health Stations. In all 381 activities were housed in the 226 premises.

### Personnel

The Health Department had 4,103 full time and 1,343 part time employees in 1957 and 3,977 full time and 1,360 part time in 1958.

# ENVIRONMENTAL SANITATION

## Food and Drugs

The basic task of the Bureau of Food and Drugs, which has a staff of almost 300 persons, is to see that the 40,000,000 pounds of food, the 3,200,000 quarts of fluid milk, the large quantities of drugs and cosmetics sold and used each day in New York City are pure, wholesome, unadulterated, safe and properly labeled.

The City's food and drug supplies are handled and distributed by approximately 100,000 food establishments, including 5,000 wholesale and processing firms, 22,000 restaurants and lunchrooms, 125 drug manufacturing concerns, 150 wholesale drug establishments and more than 4,000 retail drug stores.

Sanitarians from the Bureau of Food & Drugs supervise the mass feeding operation that was part of the week-long convocation of 254,000 Jehovah's Witnesses in Yankee Stadium and the Polo Grounds during the summer of 1958.

In 1957-58, 475,329 inspections were made, 64,319 samples taken, tested and analyzed, 478,006 pounds of food condemned as unfit for use and 7,120 complaints from citizens investigated.

In addition to its basic job of protecting the purity and wholesomeness of the community food and drug supplies, the Bureau also carries on a number of specialized activities. Among the most important of these is the work of the Division of Hospital and Institutional Inspection.

The Division inspects municipal, voluntary and private hospitals; state mental hospitals in New York City; voluntary homes for the aged and similar institutions; proprietary nursing homes; cafeterias in schools and colleges; the central commissary cafeteria and food warehouse operated by the Board of Education and restaurants operated in institutions.

A highly important aspect of this work is to help protect the water supply and distribution systems of hospitals and institutions against contamination and cross connections. Before the Division was set up (in 1946) Health Department inspectors had found numerous instances of defective and hazardous plumbing connections and had found evidence of contaminated water supplies in hospitals and similar institutions.

The contaminated water supplies were, of course, a special problem in hospitals and institutions housed in old buildings. In such structures constant and unceasing vigilance is necessary. The Division has worked with both State and City architects on plumbing problems in new buildings and has had a sound influence in helping to see that effective safeguards were built into plumbing systems. As a result of the work of this Division bad plumbing situations have been corrected. The job now is to see that they do not recur.

Another important function of this Division is to work with the Bureau of Preventable Diseases and the Bureau of Maternal and Child Health to help establish and maintain the highest possible sanitary standards in Maternity and Newborn Services. Here constant emphasis is placed on infant feeding and the preparation of formulae.

Early work on this problem showed that the total bacteria count on nipples and in formulae was intolerably high. Total bacteria counts in feeding formulae and nipples have been reduced to sterile or near-sterile levels in almost every hospital.

Every outbreak of epidemic diarrhea in any hospital is immediately investigated jointly by the Bureau of Preventable Diseases, the Bureau of Maternal and Child Health and the Division of Hospital and Institutional Instruction. There has been a steady decrease in the number of reported outbreaks, from 55 in the 1947-48 biennium to 13 outbreaks in 1957-58.

Complete and detailed reports on the findings of those who investigate outbreaks together with recommendations to correct the faulty situations are submitted to hospitals. Later follow-up visits are made to see that the faulty conditions have been corrected.

In addition to the special examinations required for maternity and newborn services, hospitals are given routine environmental sanitation inspections. In municipal hospitals these inspections are made twice a year. Inspections made during the biennium showed that steady progress was made in correcting many previously reported objectionable conditions.

Some years age surveys indicated that many voluntary homes for the aged were badly in need of sanitary supervision. Now routine inspections are made and cooperation in correcting undesirable conditions is excellent.

The New York City Department of Hospitals licenses proprietary hospitals and nursing homes. The program of the Health Department's Division of Hospital and Institutional Inspection has been geared to the Department of Hospital's work in this field. The Department of Hospitals will not now grant or renew a license unless sanitary conditions meet Health Department standards. A vital part of all the Division's work has been educational. The responsible administrators in hospitals and institutions are anxious to have their places clean, safe and sanitary, and now use the special skills and knowledge of the Health Department's staff in achieving and maintaining proper standards.

A constant problem in the inspection of hospitals and similar institutions is the handling of drugs. Division inspectors are constantly on the alert to find unlabeled drug and food containers being used for the storage of dangerous chemicals, compounds and disinfectants. In several hospitals, for instance, it was found that food cans were being used for storing powdered soaps and detergents in infant formula rooms. This is an obvious hazard which must not only be corrected but must be corrected again and again. In other cases it was found that drugs and medications were stored with foods in pantry refrigerators making it possible for food to be contaminated from leaking or broken drug containers. The Department has insisted on proper and safe separation of food from drugs in storage areas. A special drug survey in nursing homes early in 1957 disclosed that more than half of them were handling potent and potentially dangerous drugs in an improper manner. It was also found that when a patient who had been

given narcotics was discharged or had died, the remaining narcotics for such patients were loosely handled or were not properly disposed of. All of these potentially dangerous situations have been brought under control and, through constant vigilance, that control is maintained.

The value which hospitals and institutions place on the work of this Division is shown by the fact that it is very frequently requested to make advisory inspections of institutions. It is widely consulted when alterations, renovations or new construction is planned. While the Health Department inspectors are backed by authority of law and can issue summonses and take punitive action, the Department has never been forced to invoke these powers. Warnings and education have been sufficient to obtain results.

# Sanitary Engineering

New York City uses more than a billion gallons of water every day. The New York City Department of Water Supply, Gas and Electricity and two private companies supply most of the water. However, there are also some 1,100 privately owned wells in use. In addition to the water used by individuals, commercial and industrial establishments, there are 232 watering points furnishing water to ships, trains, airplanes and buses operating in interstate and international commerce. There are 1,500 installations providing chemical treatment for corrosion control.

Some 260 swimming pools and many miles of beach fronting on the waters of New York Harbor and its bays provide recreational opportunity for millions of people—both residents of New York and visitors from neighboring communities and states.

Over one and one half billion gallons of waste waters from domestic, commercial and industrial sources is developed each day. The waste waters are collected in a vast network of sewers in the five boroughs. About 60 per cent of the waste of the city is treated in 12 City pollution control plants. Plans of a continuing construction program call for the interception of about 90 per cent of the wastes by 1970. Following each heavy rainfall, and there are about 40 rains so classified each year, the combined sewers of the City overflow to harbor waters without treatment, and thus sewage endangers the beaches and pollutes the bays and estuaries to which sewers flow.

There are some areas of New York City which do not yet have sewer service. In these areas private dwellings and apartment houses, commercial and industrial establishments are faced with the choice of industrial treatment systems or discharge of wastes to a nearby water course or to harbor waters.

The City has within its boundaries 21,000 acres of marsh lands that are submerged or wetted by the tides and flood waters. These are a continuing source of mosquito breeding and are also a harborage for countless rats. The catch basins of the sewer system with small amounts of water remaining after rainfall are notorious sources of mosquito breeding. Housing conditions in many sections of the City are such that rats find food and shelter and exist in great numbers. Rats cause economic losses and structural damage to buildings.

## Coordinated Action

Supervisory activities of the Bureau of Sanitary Engineering require over 7,000 engineering investigations, the collection of over 12,000 samples and the examination of over 400 plans each year.

Major activities involve joint action with other departments of the City, health departments of adjoining communities, the New York State Health Department, the Interstate Sanitation Commission and the United States Public Health Service.

The Health Department and the Department of Water Supply, Gas and Electricity work jointly on matters of mutual concern affecting the quality of the water supply. Diligent efforts of the two departments have produced many improvements to the water system and have resulted in the correction of sanitary defects found on investigation. The average quality for the past two years shows a slight improvement over that of the past 14 years.

The Department of Health prepares annually a statement incorporating information furnished by both departments which is then used by the State Health Department in its recommendation to the United States Public Health Service concerning certification of the New York City water supply.

There is an Interdepartmental Board established to advise concerning the sanitary control and protection of the water supply. Membership of the Board comprises the two departments and the Board of Water Supply. Representatives of the State Health Department and the City Department of Public Works also meet with the Board.

The Department of Public Works and the Health Department work closely on matters of sewage disposal and its effect on harbor waters. The Health Department and the Borough President's offices are constantly reviewing problems developed by the need for extending sewers to unsewered areas, the installation of private sewage disposal systems, and the investigation and correction of defects permitting flows of untreated sewage to harbor waters.

## Harbor Pollution

The Mayor's Committee on Marginal Pollution meets for the analysis of conditions which cause pollution of harbor waters and which prevent the interception and treatment of sanitary and industrial wastes in plants constructed and operated by the Department of Public Works. Commissioners of the Departments of Public Works,

Parks, and Health, and the five borough presidents constitute the Committee. Technical assistance is rendered by engineers from each of the agencies. The Committee has in the past two years recommended specific improvements amounting to $16,000,000 as a beginning on plans for the control of pollution, supplementing $470,000,000 planned for treatment plant and interceptor construction programs.

Health Department investigations in Jamaica Bay, Upper East River, the Coney Island-Sea Gate area, Eastchester Bay, Raritan Bay and Oakwood Beach have contributed significant information to be considered by the Committee on Marginal Pollution and other agencies.

The New York State Water Pollution Control Board established a technical advisory committee in 1958 to assist it in consideration of factors affecting classification of waters of New York Harbor within the State of New York. The Health Department is represented on this committee. Other committee representation includes the City Department of Public Works, the City Department of Parks, the New York State Department of Conservation, the Interstate Sanitation Commission and the United States Public Health Service.

The Technical Advisory Committee has recommended studies to the Water Pollution Control Board which are essential in the preparation of water classification reports. These studies now in progress will become a basis for recommendations concerning harbor water classification by the Water Pollution Control Board.

### Regional Planning

Metropolitan problems of water supply, harbor pollution, and air pollution are considered by the Metropolitan Regional Council composed of elected officials of political subdivisions of the New York Metropolitan region in New York, New Jersey and Connecticut. The City Administrator's office has called in the Health Department for technical advisory services in connection with committee activities of the Council. The Council Committee on Water Pollution Control is presently preparing a regional map showing principal sewerage trunk lines, treatment plants and outfalls, together with a projection of sewerage needs in unsewered areas during the next 10 years. Long-range planning on a regional basis is focusing attention on water pollution control problems both present and future.

### Mosquito Control

The Health Department has cooperated with the Planning Commission in its studies of marshes and lands under water in the City.

A Department of Planning study developed out of the Health Department's need to determine policy with respect to mosquito control on such lands. Much of the marsh land is considered to be reclaimable and returnable to the tax rolls in the future. As such lands are reclaimed, mosquito breeding in the flooded areas will be reduced.

In 1957-58, the Department worked closely with the Borough President's offices and the Department of Sanitation in the conduct of mosquito control work.

### Private Sewage Disposal

The Health Department has been exploring with the State Health Department and City agencies the feasibility of constructing temporary treatment plants in areas without sewerage as a substitute for individual home disposal systems. The Board of Health in 1957 recommended in principle the utilization of community sewage disposal systems in developments of more than 15 homes when feasible.

By arrangement with the Board of Education, the Health Department supervises the water quality and sanitation of 37 school swimming pools in addition to surveillance of other pools in the City.

### Research

Sanitary engineering research is an important activity of the Department. Studies are in progress on the public health significance of bathing in polluted water, and on the development of pollution indicators that may improve and strengthen bacteriological and chemical methods of pollution detection now used.

# Sanitary Inspections

Problems involving housing and the control of radiologic hazards, other than fallout drew a major portion of the time and effort of the Bureau of Sanitary Inspections. The work of this Bureau on radiologic hazards is described in the Board of Health section of this report.

While the Bureau of Sanitary Inspections is concerned with the day-to-day problems of enforcing the housing provisions of the Sanitary Code, the Department of Health, in the housing field, is concerned with broad questions of policy, such as legislation, the prevention of deterioration of both buildings and neighborhoods, and other aspects of housing. The Department's Bureau of Sanitary Inspections is only one of several units of the City government charged with enforcing housing laws.

The New York City community, like other metropolitan communities, is deeply concerned with the whole housing situation. During the past biennium, much work by the City Government has gone into attempts to unify housing legislation and law enforcement authority. Substantial progress has been made.

During the biennium, the Bureau of Sanitary Inspections intensified its efforts for the removal of housing violations covered by provisions of the Sanitary Code. A record 18,897 housing inspections were made in 1957 and 19,169 in 1958.

In December, 1958, the City Council passed a local law providing for the gradual conversion of "cold water flats" to centrally heated buildings, or for the installation of individual room gas and space heaters. Only gas units approved by the Health Department could be used as space heaters. In connection with its work of preventing gas poisonings, the gas survey unit of the Bureau of Sanitary Inspections inspected 31,906 appliances in 14,943 apartments, and found 7,437 appliances were defective in 1958. It shut down 1,430 appliances as being too dangerous to use.

Before the Department began its intensive work on the prevention of carbon monoxide gas poisoning there were, on the average, 242 carbon monoxide gas deaths a year. In 1957 there were 18 accidental carbon monoxide gas deaths; in 1958 there were 23. The drop from an average of 242 to 23 and 18 deaths is a measure of the effectiveness of that program.

# POISON CONTROL CENTER

The Poison Control Center was established in 1955 to gather and dispense information concerning both the ingredients of potentially dangerous preparations and the treatment of poison victims. It continues to gain in popularity and support by the public as well as the medical profession.

The Center, on call around the clock, does not limit its activities to New York City alone, but serves the metropolitan area as well as the entire State of New York. Many inquiries are received from distant states and localities; these too are answered.

For example, during the period of this report, a late night telephone appeal was received from a hospital in Montreal for a supply of a drug (megimide) which was unobtainable in that city. The hospital requested this drug for the treatment of a child who had swallowed nembutal tablets. The child was comatose and did not respond to treatment. Fortunately, the Poison Control Center knew of the drug and had a sample on hand. The Emergency Unit of the Department rushed the drug to a waiting airplane. It was administered to the child who responded to it dramatically and subsequently recovered.

As a result of this incident, the Poison Control Center received very favorable nation-wide publicity.

The Poison Control Center continually distributes technical notices and digests of current literature on accidental poisonings to hospitals, physicians and Department staff. It also concerns itself with standardization of dosages, packaging, proper labeling and bring to the attention of the Bureau of Food and Drugs of the Health Department, and the Committee on Toxicology of the American Medical Association, matters that may require their attention.

From the establishment of the Poison Control Center until the end of 1958, more than 23,000 incidents had been reported to the Center. In 1957, 7,087 incidents were reported (see table), in 1958, 7,706 incidents were reported for a combined total of 14,793 incidents. This figure is much lower than the actual number of incidents.

This figure is much lower than the actual number of incidents reported since, due to a lack of sufficient clerical help, all the incidents have not, as yet, been entered and categorized.

INCIDENTS

| *Toxic Agents Involved* | 1958 | 1957 |
|---|---|---|
| Internal Medicine | 3,764 | 3,570 |
| External Medicine | 679 | 637 |
| Rodenticides | 147 | 146 |
| Insectides | 388 | 327 |
| *Household Articles* | | |
| Disinfectants | 193 | 210 |
| Detergents | 379 | 327 |
| Polishes | 144 | 130 |
| Bleaches | 287 | 287 |
| Solvents | 322 | 325 |
| Cosmetics | 308 | 280 |
| Miscellaneous | 1,095 | 848 |
| Total | 7,706 | 7,087 |

There was an increase in the incidence of poisonings due to internal medications as compared with the preceding years, as well as in the incidence of poisonings caused by external medications. The chief offenders in the internal medications were aspirin and barbiturates.

The number of aspirin poisonings during 1958 was almost the same as during 1957, 788 in 1957; 803 in 1958. The number of incidents due to barbiturate poisonings was slightly less than in 1957, 1,087 in 1957; 999 in 1958. Of the aspirin poisonings, 80 per cent were in individuals under 19 years of age. Of the incidents reported in individuals under 19 years of age almost 90 per cent were in children under five years of age. The barbiturate poisonings, however, were chiefly reported in individuals 19 years of age or older, and they were mainly due to attempted suicides.

During 1958 a total of 144 poison fatalities were reported against 132 in the preceding year. The increase is chiefly due to 27 deaths which resulted from an outbreak of methyl alcohol poisoning. An increase was also shown in deaths due to lead poisoning. Of the total fatalities, 24 were in children under 19 years of age during 1957. Of the fatalities in children under five years of age, the majority (19) were due to lead poisoning in 1958, against nine in 1957. Total lead poisonings for 1957 and 1958 were 198, 113 in 1958, 85 for 1957.

# PROGRAM PLANNING & RESEARCH

The Division of Program Planning and Research is a staff unit of the Department responsible for the promotion, stimulation and performance of high quality research among all Department units and for assistance in developing and evaluating new services and ongoing programs. The Division staff includes, in addition to the director, who is a Deputy Commissioner of Health, a director of research activities, a director of social science activities, and a director of publications. Also on the staff are representatives of the areas of Social Work, Social Science, Public Health Nursing, Statistics, and Health Education and consultants in occupational health and medical care.

A Research and Publications Committee has been formed consisting of representatives of the bureaus of the Health Department and consultants from organizations outside the Department interested in public health research. At formal monthly meetings, attended usually by about 30 committee members and guests, research projects are presented for critical discussion. There are projects in which members of the Department are involved as participants, or studies in which the Department's facilities are concerned but which are to be conducted by outside research groups.

During the biennial period 50 projects were reviewed by this committee. Ten of these were presented in a preliminary planning stage and have not yet been undertaken or have been abandoned. Fourteen have received special support from institutions other than the one conducting the study. The remaining 26 have been supported entirely by local funds or services of the responsible research group. Most of these 26 (16 of the 26) are projects supported entirely by the Department of Health.

Grants totaling $771,206 have been received or committed from outside agencies in support of these studies. These funds have come from federal, state and local government and from private groups. Some of the groups involved in these projects, in addition to the Health Department, include four of the medical schools in New York City, other City departments, the Community Council of Greater New York, the Health Insurance Plan of Greater New York, the New Jersey State Health Department and the National Office of Vital Statistics. Within the Health Department 14 different bureaus were listed as the bureau chiefly responsible for one or more

studies, and the Bureaus of Nursing and of Statistics were called on for assistance in almost all the studies.

The activities of the Division are generally considered under the four general categories of research, program planning, evaluation, and review of publications. Some of the diverse work of the Division may be suggested by descriptions of projects representative of these categories.

In the research field the development of the social research group within the Division has been accomplished during the 1957-1958 period. This development is in itself a special project, supported by a grant from the Russell Sage Foundation, to demonstrate the function of a social scientist and his staff in all aspects of the activity of a city Health Department. This staff is now conducting a number of studies, including an evaluation of the methods used to teach physicians and nurses how to conduct child health conferences, and a study of the patterns whereby individuals in the community seek and obtain medical care, their attitudes regarding medical need and facilities, and the process they go through in locating needed care and in moving from one facility to another.

Space does not permit even a brief account of the large number of research projects now under way. As a means of illustration, however, the highlights of three representative studies will be presented.

A three year study of the rehabilitation potential of patients in New York City nursing homes was begun in 1957. Patients with some rehabilitation potential have been divided into four groups of 100 each for further study. One group is being moved to a teaching hospital rehabilitation service, where the most elaborate treatment is being offered. Another is receiving extensive treatment within the nursing home by means of a visiting team of physicians, nurses, physical therapists and psychologists. The other two groups are controls—one composed of patients in nursing homes where other patients are receiving special therapy and the second control group includes patients in homes where no special treatment program exists. This study is an example of the complex administrative framework which only a city health department could handle and which is required for a project of this nature. The study team comprises four City departments (Health, Hospitals, Welfare and Mental Health), two medical schools and the State Health Department. It is being supported by approximately $300,000 in grants supplied by the National Institutes of Health and the Rosenthal Foundation, and is one of the first attempts made to test rehabilitation potential by means of a controlled study.

Physicians have long been aware that many adolescents and young adults have albumin in their urine only when standing and not in the specimen voided immediately on awakening in the morning. It has been believed by many that this is an inconsequential finding of no health importance. The Department, in cooperation with a New York physician, has been studying the true significance of this condition. During the Korean war, about 4,000 draftees were found to have some degree of albuminuria and the follow-up of many of these has afforded the opportunity of seeing what has happened to them. The results so far available indicate that albuminuria is really an early sign of kidney damage and that the condition cannot be ignored. It suggests the necessity for following such patients carefully in order to keep the kidney disease from progressing.

The increase in deaths from coronary heart disease during the past decade appears to have affected men far more than women, particularly in the 40 to 50 age group. One theory which seeks to explain this difference suggests that a female sex hormone protects the women from the development of coronary heart disease. The Department, in cooperation with the Columbia School of Public Health, has been studying a large number of women who have had their ovaries removed before the menopause in order to see if these women have a higher risk of developing coronary heart disease. This study is being supported by a special grant from the National Institutes of Health.

In the area of program planning, the Division has been particularly active in the development of a program for the rehabilitation of handicapped people in the Borough of Queens. This program is designed both to aid in obtaining services from existing facilities and to set up new facilities where an uncovered need is found. The Health Officer of the Borough is responsible for this development and has obtained excellent cooperation from the private physicians, local hospitals and organizations particularly involved in rehabilitation services and financing. The importance of this project lies in the fact that modern techniques for the rehabilitation of the adult offer much promise, but there is no real knowledge of how they may be applied practically and efficiently to all socio-economic groups in the community.

Up to the present time the Division has been more involved in the theory of evaluations than in actual evaluation studies, although several small evaluations have been completed and some are under way. For the past 10 years, the Department has operated a diagnostic

center for patients of private physicians who cannot afford to have extensive medical and laboratory tests as a follow-up to a general practitioner's examination. The diagnostic center in Manhattan had never had a very large clientele and evaluation was performed to assess its past usefulness and recommend its future role in the total health program. On the basis of this evaluation, it was decided that the center should be used primarily as a consultant service to the other clinics of this Department, rather than to continue it or expand its use for the general community. This resulted in a change in the program, permitting a reduction of cost and making the facility a more useful resource to the Department.

The director of the Division, together with the director of Social Science Activities in the Division, conducted a seminar course in evaluations for students in the Columbia University School of Public Health during the past year. Of particular interest has been the question of what level of objectives should be evaluated. Several studies are now being conducted to evaluate programs by comparing their operation with some ideal standard. An example of this is an evaluation of the Health Department program for training physicians and nurses, mentioned above. In this study it is assumed that a certain type of child health conference is desirable. A more searching evaluation would ask the question of how the desired type of conference results in benefit to the parent and child. Similar evaluation questions could properly be asked of much of the work in public health programs and these questions can only be answered by complex studies. It is hoped that some such studies will be initiated in the near future.

The fourth general function of the Division is that of reviewing papers to be published by the Department. One member of the Division reads all material for publication by Department members, totaling 106 pages during the biennial period. Each paper is then circulated to four or five specially selected individuals in or out of the Department for criticism prior to publication.

# THE PUBLIC HEALTH RESEARCH INSTITUTE OF THE CITY OF NEW YORK, INC.

The Institute is a unique example of direct civic fiscal support of basic research in the public health field. It was started in June 1941 in order to promote first-class research in the laboratory field. The Institute provides unusual opportunities for scientific investigation unhampered by other duties and the organization has an enviable record of scientific achievements. In addition to support from the City, it has received grants from the United States Public Health Service. Its major divisions are the Division of Infectious Diseases, the Division of Nutrition and Physiology, and the Division of Applied Immunology.

The Division of Infectious Diseases is mainly concerned with discovering the manner in which a variety of viruses multiply in mammalian cells. A great deal of virus work formerly done in whole animals is now carried out in cells in tissue culture. This has greatly simplified the entire approach and permits an attack on the virus problem at the cellular level. Using this technique, the Institute is endeavoring to find more about how a virus multiplies and reproduces itself when it gets inside a cell. It is through such detailed knowledge that improved procedures for control of virus infections can be developed. In addition, scientific progress has been made in studying the inactivation of polio virus by antibody and we are on the threshhold of learning how and under what circumstances neutral virus can be reactivated.

The Division of Nutrition and Physiology is concerned with the utilization of sugars and amino acids for energy or for conversion into other compounds. These studies involve the identification; isolation and purification of the numerous enzymes which perform the steps in the utilization of a sugar or amino acid. In many of these steps, the compounds formed are present only transiently and in low concentration. One such intermediate compound is argininosuccinic acid, which normally is present in tissue in trace amounts since it is usually broken as rapidly as it is found to make arginine and other compounds. Some English workers recently discovered in a case of mental

deficiency that there was a piling up of this substance (argininosuccinic acid) in the spinal fluid and urine. The behavior of this compound *in vitro* biological systems had been thoroughly worked out some time ago by one of the Institute's present members.

The Division of Applied Immunology is containing its studies on allergic reactions in animals in an effort to improve the understanding and handling of such human ailments as asthma and hay fever. Toward this goal a very significant recent development by the staff of this Division is the first successful production of antibodies *in vitro*. While this development has little value in applied public health, it should be of tremendous assistance to research scientists in their quest for further basic knowledge about antibody production and the formation of enzymes and other proteins.

Basic studies of the kind undertaken by the Institute are essential to the unraveling of many of the mysteries which need to be solved before certain vital bacterial and metabolic diseases are under control.

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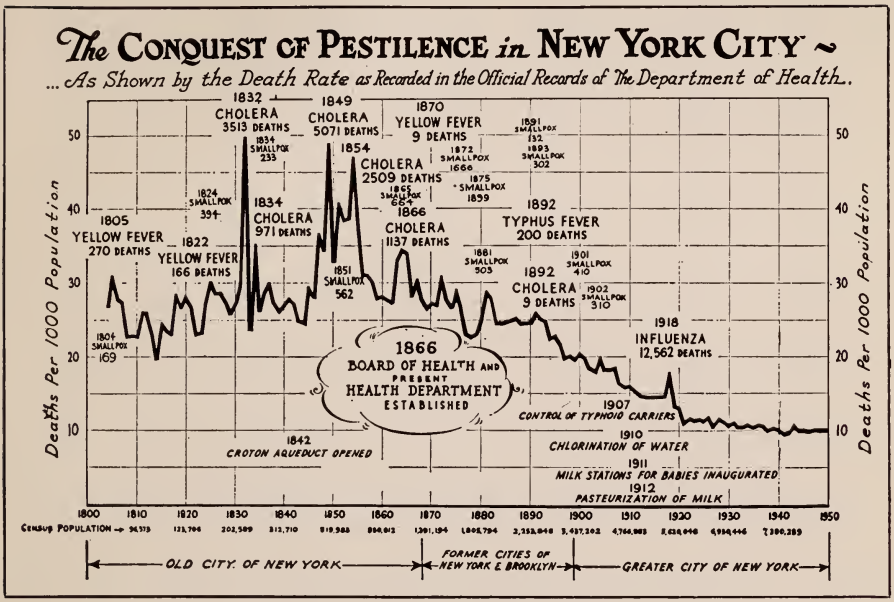
# SUMMARY OF VITAL STATISTICS 1958

## THE CITY OF NEW YORK


The Conquest of Pestilence in New York City
... As Shown by the Death Rate as Recorded in the Official Records of The Department of Health.
Deaths Per 1000 Population
1832 CHOLERA 3513 DEATHS
1834 SMALLPOX 233
1849 CHOLERA 5071 DEATHS
1854 CHOLERA 2509 DEATHS
1865 SMALLPOX 684
1870 YELLOW FEVER 9 DEATHS
1872 SMALLPOX 1660
1875 SMALLPOX 1859
1891 SMALLPOX 132
1893 SMALLPOX 302
1805 YELLOW FEVER 270 DEATHS
1822 YELLOW FEVER 166 DEATHS
1824 SMALLPOX 394
1834 CHOLERA 971 DEATHS
1851 SMALLPOX 562
1866 CHOLERA 1137 DEATHS
1881 SMALLPOX 503
1892 TYPHUS FEVER 200 DEATHS
1892 CHOLERA 9 DEATHS
1901 SMALLPOX 410
1902 SMALLPOX 310
1804 SMALLPOX 169
1866 BOARD OF HEALTH AND PRESENT HEALTH DEPARTMENT ESTABLISHED
1842 CROTON AQUEDUCT OPENED
1907 CONTROL OF TYPHOID CARRIERS
1910 CHLORINATION OF WATER
1911 MILK STATIONS FOR BABIES INAUGURATED
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## Table 1. Population, Births, Marriages, Deaths and Infant Mortality, 1898-1958

| Year | Estimated Population July 1 | Live Births* | | Marriages | | Deaths | | Fetal Deaths | | Infant Mortality | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Total Reported | Rate per 1,000 | Total Reported | Rate per 1,000 | Total Reported | Rate per 1,000 | Total Reported | Ratio to 1,000 Live Births | Deaths Under One Year | Rate per 1,000 Live Births |
| 1898-1900 | 3,358,000 | 119,000 | 35.4 | 30,535 | 9.1 | 67,503 | 20.1 | 5,639 | 47.4 | 16,264 | 136.7 |
| 1901-1905 | 3,786,000 | 129,000 | 34.1 | 37,988 | 10.0 | 71,689 | 18.9 | 6,096 | 47.3 | 15,611 | 121.0 |
| 1906-1910 | 4,473,000 | 144,000 | 32 2 | 44,966 | 10.1 | 75,865 | 17.0 | 6,927 | 48.1 | 16,609 | 115.3 |
| 1911-1915 | 5,049,000 | 140,581 | 27.8 | 51,157 | 10.1 | 74,666 | 14.8 | 6,590 | 46.9 | 14,060 | 100.0 |
| 1916-1920 | 5,492,000 | 136,101 | 24.8 | 59,081 | 10.8 | 80,435 | 14.6 | 6,276 | 46.1 | 12,004 | 88.2 |
| 1921-1925 | 6,175,000 | 130,462 | 21.1 | 62,510 | 10 1 | 69,303 | 11.2 | 6,205 | 47.6 | 8,985 | 68.9 |
| 1926-1930 | 6,703,000 | 125,590 | 18.7 | 65,278 | 9.7 | 75,395 | 11.2 | 5,899 | 47.0 | 7,662 | 61.0 |
| 1931-1935 | 7,101,000 | 106,179 | 15.0 | 63,273 | 8.9 | 75,561 | 10.6 | 5,259 | 49.5 | 5,521 | 52.0 |
| 1936 | 7,258,000 | 98,507 | 13.6 | 72,234 | 10.0 | 77,638 | 10.7 | 4,992 | 50.7 | 4,490 | 45.6 |
| 1937 | 7,311,000 | 101,988 | 13.9 | 69,417 | 9.5 | 77,465 | 10.6 | 4,847 | 47.5 | 4,457 | 43.7 |
| 1938 | 7,363,000 | 102,045 | 13.9 | 63,493 | 8.6 | 73,775 | 10.0 | 4,995 | 48.9 | 3,910 | 38.3 |
| 1939 | 7,416,000 | 102,261 | 13.8 | 62,288 | 8.4 | 75,439 | 10.2 | 6,831‡ | 66.8‡ | 3,793 | 37.1 |
| 1940 | 7,466,000 | 107,287 | 14.4 | 78,487 | 10.5 | 76,008 | 10.2 | 7,986 | 74.4 | 3,746 | 34.9 |
| 1941 | 7,510,000 | 114,367 | 15.2 | 83,012 | 11.1 | 74,553 | 9.9 | 8,974 | 78.5 | 3,519 | 30.8 |
| 1942 | 7,553,000 | 131,989 | 17.5 | 81,454 | 10.8 | 75,675 | 10.0 | 10,013 | 75.9 | 3,805 | 28.8 |
| 1943 | 7,597,000 | 134,520 | 17.7 | 76,059 | 10.0 | 83,174 | 11.0 | 9,508 | 70.7 | 4,065 | 30.2 |
| 1944 | 7,641,000 | 122,748 | 16.1 | 67,315 | 8.8 | 78,783 | 10.3 | 9,987 | 81.4 | 3,829 | 31.2 |
| 1945 | 7,684,000 | 128,853 | 16.8 | 72,589 | 9.4 | 79,726 | 10.4 | 10,367 | 80.5 | 3,918 | 30.4 |
| 1946 | 7,728,000 | 152,736 | 19.8 | 104,548 | 13.5 | 78,481 | 10.2 | 12,980 | 85.0 | 4,239 | 27.8 |
| 1947 | 7,772,000 | 171,174 | 22.0 | 95,897 | 12.3 | 80,733 | 10.4 | 14,077 | 82.2 | 4,517 | 26.4 |
| 1948 | 7,815,000 | 157,969 | 20.2 | 92,273 | 11.8 | 81,651 | 10.4 | 14,018 | 88.7 | 4,138 | 26.2 |
| 1949 | 7,859,000 | 156,932 | 20.0 | 79,367 | 10.1 | 78,593 | 10.0 | 14,455 | 92.1 | 3,942 | 25.1 |
| 1950 | 7,903,000 | 155,818 | 19.7 | 82,535 | 10.4 | 79,082 | 10.0 | 16,405 | 105.3 | 3,858 | 24.8 |
| 1951 | 8,042,000 | 162,755 | 20.2 | 76,983 | 9.6 | 79,109 | 9.8 | 17,961 | 110.4 | 3,847 | 23.6 |
| 1952 | 8,086,000 | 164,165 | 20.3 | 71,004 | 8.8 | 81,139 | 10.0 | 18,549 | 113.0 | 3,980 | 24.2 |
| 1953 | 8,078,000 | 161,499 | 20.0 | 71,942 | 8.9 | 82,039 | 10.2 | 19,357 | 119.9 | 3,945 | 24.4 |
| 1954 | 8,041,000 | 164,060 | 20.4 | 69,900 | 8.7 | 79,014 | 9.8 | 20,379 | 124.2 | 3,891 | 23.7 |
| 1955 | 8,042,000 | 165,150 | 20.5 | 68,615 | 8.5 | 81,612 | 10.1 | 20,384 | 123.4 | 4,268 | 25.8 |
| 1956 | 8,086,000 | 165,553 | 20.5 | 70,291 | 8 7 | 81,118 | 10.0 | 21,527 | 130.0 | 4,052 | 24.5 |
| 1957 | 8,080,000 | 166,977 | 20.7 | 69,498 | 8.6 | 84,141 | 10.4 | 21,810 | 130.6 | 4,176 | 25.0 |
| 1958 | 8,042,000 | 167,775 | 20 9 | 67,594 | 8.4 | 84,586 | 10.5 | 22,331 | 133.1 | 4,435 | 26.4 |

NOTE: Figures for single years prior to 1936 appear in the annual summaries for 1957 and earlier.
* 1898-1913 birth figures are estimated, as the number actually reported was undoubtedly incomplete.
‡ Increase due to improved reporting of fetal deaths under 20 weeks gestation.

## Table 2. Births, Deaths, Maternal Deaths and Fetal Deaths, by Borough of Report, 1958

| BOROUGH | Estimated Population July 1 | Live Births | Deaths | Fetal Deaths | Maternal Deaths | | |
|---|---|---|---|---|---|---|---|
| | | | | | Number | Rate per 10,000 | |
| | | | | | | Live Births | Total Births* |
| Manhattan | 1,831,000 | 51,956 | 28,088 | 6,960 | 39 | 7.5 | 6.6 |
| The Bronx | 1,444,000 | 21,700 | 13,478 | 3,410 | 16 | 7.4 | 6.4 |
| Brooklyn | 2,702,000 | 57,925 | 26,155 | 7,709 | 31 | 5.4 | 4.7 |
| Queens | 1,855,000 | 31,537 | 14,508 | 3,754 | 15 | 4.8 | 4.3 |
| Richmond | 210,000 | 4,657 | 2,357 | 498 | 2 | 4.3 | 3.9 |
| City of New York | 8,042,000 | 167,775 | 84,586 | 22,331 | 103 | 6.1 | 5.4 |

* Live births and fetal deaths.

## Table 3. Births, Fetal Deaths, and Deaths by Borough of Residence City of New York, 1958

| | Total Recorded In New York City | Known Residents by Borough of Residence | | | | | Known Non-Residents of City | Permanent Res. Unknown |
|---|---|---|---|---|---|---|---|---|
| | | Manhattan | Bronx | B'klyn | Queens | Rich'd | | |
| Live births | 167,775 | 32,925 | 27,079 | 56,015 | 34,461 | 4,523 | 11,568 | 1,204 |
| Rate per 1,000 population | 20.9 | 18.0 | 18.8 | 20.7 | 18.6 | 21.5 | ..... | ..... |
| Fetal deaths | 22,331 | 5,375 | 3,637 | 7,519 | 3,956 | 493 | 1,187 | 164 |
| Ratio per 1,000 live births | 133.1 | 163.2 | 134.3 | 134.2 | 114.8 | 109.0 | ..... | ..... |
| Deaths under one year | 4,435 | 1,108 | 717 | 7,501 | 718 | 94 | 265 | 32 |
| Rate per 1,000 live births | 26.4 | 33.7 | 26.5 | 26.8 | 20.8 | 20.8 | ..... | ..... |
| Deaths under 28 days | 3,286 | 826 | 514 | 1,110 | 546 | 76 | 184 | 30 |
| Rate per 1,000 live births | 19.6 | 25.1 | 19.0 | 19.8 | 15.8 | 16.8 | ..... | ..... |
| Deaths from all causes | 84,586 | 21,457 | 14,020 | 26,777 | 15,629 | 2,105 | 3,983 | 615 |
| Death rate per 1,000 population | 10.5 | 11.7 | 9.7 | 9.9 | 8.4 | 10.0 | ..... | ..... |

## Table 4. Deaths by Cause and Borough of Residence, City of New York, 1958

| CAUSE OF DEATH | Total Recorded In New York City | Known Residents by Borough of Residence | | | | | Known Non-Residents of City | Permanent Res. Unknown |
|---|---|---|---|---|---|---|---|---|
| | | Manhattan | Bronx | B'klyn | Queens | Rich'd | | |
| TOTAL, ALL CAUSES | 84,586 | 21,457 | 14,020 | 26,777 | 15,629 | 2,105 | 3,983 | 615 |
| 1. Total tuberculosis (001-019) | 833 | 345 | 114 | 206 | 110 | 13 | 22 | 23 |
| Respiratory tuberculosis (001-008) | 772 | 326 | 107 | 190 | 95 | 12 | 20 | 22 |
| Other forms (010-019) | 61 | 19 | 7 | 16 | 15 | 1 | 2 | 1 |
| 2. Syphilis and its sequelae (020-029) | 132 | 48 | 17 | 37 | 17 | 1 | 10 | 2 |
| 3. Acute poliomyelitis (080) | 5 | ..... | 1 | 2 | ..... | ..... | 2 | ..... |
| 4. Infectious hepatitis (092) | 45 | 13 | 6 | 16 | 8 | ..... | 2 | ..... |
| 5. Other infective and parasitic diseases (Rest of 001-138) | 140 | 44 | 23 | 44 | 18 | 2 | 7 | 2 |
| 6. Malignant neoplasms, all (140-205) | 16,659 | 3,978 | 3,002 | 4,822 | 3,228 | 334 | 1,257 | 38 |
| Buccal cavity and pharynx (140-148) | 406 | 118 | 87 | 88 | 69 | 14 | 30 | ..... |
| Digestive organs and peritoneum (150-159) | 6,419 | 1,550 | 1,241 | 1,949 | 1,219 | 133 | 312 | 15 |
| *Stomach (151)* | 1,577 | 392 | 332 | 468 | 283 | 29 | 65 | 8 |
| *Large intestine (153)* | 1,841 | 434 | 360 | 554 | 377 | 37 | 78 | 1 |
| *Rectum (154)* | 898 | 209 | 177 | 273 | 168 | 18 | 51 | 2 |
| *Biliary passages and liver (155, 156)* | 704 | 172 | 122 | 224 | 148 | 7 | 30 | 1 |
| *Pancreas (157)* | 821 | 196 | 144 | 256 | 172 | 16 | 36 | 1 |
| Respiratory system (160-165) | 2,614 | 585 | 475 | 760 | 552 | 42 | 189 | 11 |
| *Bronchus (162.1)* | 933 | 212 | 151 | 260 | 202 | 16 | 87 | 5 |
| *Lung and pleura (162.2, 163)* | 1,401 | 297 | 272 | 441 | 292 | 19 | 74 | 6 |
| Breast and genito-urinary organs (170-181) | 4,243 | 1,061 | 696 | 1,229 | 867 | 82 | 300 | 8 |
| *Breast (170)* | 1,582 | 384 | 264 | 456 | 320 | 31 | 126 | 1 |
| *Cervix uteri (171)* | 406 | 135 | 78 | 112 | 47 | 6 | 26 | 2 |
| *Ovary, Fallopian tube and broad ligament (175)* | 515 | 120 | 94 | 152 | 109 | 4 | 35 | 1 |
| *Prostate (177)* | 567 | 146 | 89 | 169 | 114 | 3 | 34 | 2 |
| *Bladder and other urinary organs (181)* | 495 | 118 | 70 | 143 | 124 | 17 | 22 | 1 |
| Other and unspecified sites (190-199) | 1,494 | 350 | 253 | 420 | 260 | 30 | 179 | 2 |
| Lymphatic and hematopoietic tissues (200-205) | 1,483 | 314 | 250 | 376 | 261 | 33 | 247 | 2 |
| *Leukemia and aleukemia (204)* | 699 | 125 | 118 | 180 | 131 | 18 | 126 | 1 |
| 7. Benign and unspecified neoplasms (210-239) | 323 | 66 | 60 | 98 | 47 | 10 | 40 | 2 |
| 8. Diabetes mellitus (260) | 1,624 | 325 | 291 | 634 | 287 | 47 | 37 | 3 |
| 9. Total cardiovascular-renal (330-334, 400-468, 592-594) | 46,150 | 11,387 | 7,548 | 15,299 | 8,835 | 1,269 | 1,571 | 241 |
| Vascular lesions of nervous system (330-334) | 6,149 | 1,600 | 927 | 2,008 | 1,182 | 189 | 210 | 33 |
| Rheumatic fever (400-402) | 20 | 3 | 3 | 4 | 9 | ..... | ..... | 1 |
| Diseases of the heart (410-443) | 37,202 | 9,144 | 6,215 | 12,511 | 6,928 | 984 | 1,222 | 198 |
| *Chronic rheumatic heart disease (410-416)* | 1,331 | 291 | 214 | 459 | 256 | 27 | 82 | 2 |
| *Arteriosclerotic heart disease (420)* | 28,825 | 6,854 | 4,942 | 9,676 | 5,444 | 811 | 948 | 150 |
| *Other myocardial degeneration (421, 422)* | 2,495 | 786 | 316 | 936 | 305 | 67 | 61 | 24 |
| *Hypertension with heart disease (440-443)* | 4,193 | 1,110 | 689 | 1,339 | 858 | 70 | 111 | 16 |
| Hypertension no mention of heart (444-447) | 549 | 136 | 83 | 155 | 126 | 25 | 24 | ..... |
| General arteriosclerosis (450) | 1,177 | 245 | 168 | 341 | 352 | 38 | 26 | 7 |
| Chronic and unspecified nephritis (592-594) | 599 | 120 | 95 | 179 | 142 | 22 | 40 | 1 |
| 10. Influenza and pneumonia (480-483, 490-493) | 3,597 | 1,084 | 565 | 1,122 | 565 | 83 | 126 | 52 |
| 11. Ulcer of stomach and duodenum (540, 541) | 780 | 163 | 129 | 264 | 153 | 17 | 51 | 3 |
| 12. Appendicitis (550-553) | 129 | 32 | 33 | 32 | 20 | 7 | 5 | ..... |
| 13. Intestinal obstruction and hernia (560, 561, 570) | 410 | 98 | 64 | 140 | 76 | 9 | 17 | 6 |
| 14. Gastritis, duodenitis, enteritis, colitis (543, 571, 572) | 322 | 82 | 59 | 89 | 67 | 6 | 17 | 2 |
| 15. Cirrhosis of liver (581) | 1,645 | 568 | 267 | 416 | 243 | 38 | 89 | 24 |
| 16. Acute nephritis and nephrosis (590, 591) | 31 | 6 | 6 | 8 | 7 | 1 | 3 | ..... |
| 17. Hyperplasia of prostate (610) | 277 | 59 | 59 | 91 | 53 | 3 | 11 | 1 |
| 18. Puerperal diseases (640-689) | 103 | 35 | 18 | 29 | 15 | 2 | 4 | ..... |
| 19. Congenital malformations (750-759) | 938 | 181 | 146 | 259 | 179 | 26 | 146 | 1 |
| 20. Diseases of early infancy (760-776) | 2,853 | 730 | 455 | 986 | 463 | 69 | 140 | 10 |
| 21. All other diseases | 3,794 | 1,114 | 570 | 1,130 | 607 | 87 | 234 | 52 |
| 22. Total accidents (800-962) | 2,638 | 725 | 395 | 758 | 457 | 59 | 146 | 98 |
| Motor vehicle accidents (810-835) | 655 | 127 | 103 | 221 | 116 | 23 | 52 | 13 |
| Home accidents | 1,071 | 361 | 167 | 287 | 220 | 16 | 20 | ..... |
| Drowning* (929) | 155 | 40 | 14 | 31 | 17 | 5 | 17 | 31 |
| 23. Suicide (963, 970-979) | 793 | 232 | 145 | 192 | 148 | 15 | 37 | 23 |
| 24. Homicide (964, 965, 980-999) | 365 | 142 | 46 | 103 | 26 | 7 | 9 | 32 |

* Exclusive of drownings at home.

Numbers in parentheses are those of the International Statistical Classification of Diseases, Injuries and Causes of Death, 1958 Revision.

## Table 5. Chief Causes of Death in Certain Age Groups (a) City of New York, 1958

| Males | | | Females | |
|---|---|---|---|---|
| Deaths | Per Cent | ALL AGES | Deaths | Per Cent |
| 20,978 | 46 | Heart Diseases | 16,224 | 43 |
| 8,996 | 19 | Malignant Neoplasms | 7,663 | 20 |
| 2,798 | 6 | Vascular Lesions of Central Nervous System | 3,351 | 9 |
| 2,061 | 4 | Influenza and Pneumonia | 1,536 | 4 |
| 1,607 | 3 | Diseases Peculiar to Early Infancy | 1,246 | 3 |
| 1,643 | 3 | Accidents | 995 | 3 |
| 1,102 | 2 | Cirrhosis of the Liver | 543 | 2 |
| 630 | 1 | Diabetes Mellitus | 994 | 3 |
| 7,240 | 16 | All Other Causes | 4,979 | 13 |
| 47,055 | 100 | Total | 37,531 | 100 |
| | | UNDER ONE YEAR | | |
| 630 | 25 | Immaturity | 490 | 26 |
| 518 | 20 | Postnatal Asphyxia and Atelectasis | 399 | 21 |
| 389 | 15 | Influenza and Pneumonia | 293 | 15 |
| 360 | 14 | Congenital Malformations | 289 | 15 |
| 186 | 7 | Diseases Peculiar to Early Infancy | 156 | 8 |
| 170 | 7 | Injury at Birth | 103 | 6 |
| 49 | 2 | Accidents | 34 | 2 |
| 41 | 2 | Diarrhea | 32 | 2 |
| 194 | 8 | All Other Causes | 102 | 5 |
| 2,537 | 100 | Total | 1,898 | 100 |
| | | 1 TO 14 YEARS | | |
| 140 | 21 | Malignant Neoplasms | 93 | 19 |
| 137 | 21 | Accidents | 88 | 18 |
| 75 | 11 | Influenza and Pneumonia | 87 | 18 |
| 99 | 15 | Congenital Malformations | 58 | 12 |
| 15 | 2 | Meningitis | 8 | 2 |
| 10 | 2 | Chronic Nephritis | 7 | 1 |
| 9 | 1 | Bronchitis | 7 | 1 |
| 5 | 1 | Tuberculosis | 7 | 1 |
| 170 | 26 | All Other Causes | 139 | 28 |
| 660 | 100 | Total | 494 | 100 |
| | | 15 TO 24 YEARS | | |
| 112 | 23 | Accidents | 31 | 10 |
| 73 | 15 | Malignant Neoplasms | 44 | 14 |
| 50 | 10 | Homicide | 26 | 9 |
| 30 | 6 | Suicide | 17 | 6 |
| 27 | 5 | Influenza and Pneumonia | 13 | 4 |
| 25 | 5 | Heart Diseases | 14 | 5 |
| | | Puerperal Diseases | 25 | 8 |
| 8 | 2 | Tuberculosis | 9 | 3 |
| 169 | 34 | All Other Causes | 126 | 41 |
| 494 | 100 | Total | 305 | 100 |
| | | 25 TO 44 YEARS | | |
| 510 | 16 | Malignant Neoplasms | 741 | 30 |
| 807 | 26 | Heart Diseases | 386 | 16 |
| 325 | 11 | Accidents | 102 | 4 |
| 187 | 6 | Cirrhosis of the Liver | 123 | 5 |
| 158 | 5 | Influenza and Pneumonia | 89 | 4 |
| 105 | 3 | Vascular Lesions of Central Nervous System | 137 | 6 |
| 134 | 4 | Suicide | 79 | 3 |
| 101 | 3 | Tuberculosis | 85 | 3 |
| 813 | 26 | All Other Causes | 701 | 29 |
| 3,140 | 100 | Total | 2,443 | 100 |
| | | 45 TO 64 YEARS | | |
| 7,778 | 47 | Heart Diseases | 3,549 | 36 |
| 3,691 | 23 | Malignant Neoplasms | 3,267 | 33 |
| 716 | 5 | Vascular Lesions of Central Nervous System | 665 | 7 |
| 636 | 4 | Cirrhosis of the Liver | 298 | 3 |
| 503 | 3 | Influenza and Pneumonia | 257 | 3 |
| 513 | 3 | Accidents | 168 | 2 |
| 246 | 1 | Diabetes Mellitus | 313 | 3 |
| 331 | 2 | Tuberculosis | 59 | 1 |
| 1,995 | 12 | All Other Causes | 1,168 | 12 |
| 16,409 | 100 | Total | 9,744 | 100 |
| | | 65 AND OVER | | |
| 12,362 | 52 | Heart Diseases | 12,269 | 54 |
| 4,575 | 19 | Malignant Neoplasms | 3,512 | 15 |
| 1,956 | 8 | Vascular Lesions of Central Nervous System | 2,536 | 11 |
| 1,012 | 4 | Influenza and Pneumonia | 887 | 4 |
| 465 | 2 | General Arteriosclerosis | 624 | 3 |
| 507 | 2 | Accidents | 572 | 3 |
| 334 | 2 | Diabetes Mellitus | 643 | 3 |
| 271 | 1 | Cirrhosis of the Liver | 116 | 1 |
| 2,333 | 10 | All Other Causes | 1,488 | 6 |
| 23,815 | 100 | Total | 22,647 | 100 |

(a) Eight leading causes of death in each age group arranged in order of importance for both sexes combined.

## Table 6. Expectation of Life in New York City at Specified Ages 1901, 1910, 1930, 1940, 1950 and 1957 and United States 1957

MALE

| Exact Age | New York City 1901 Total | 1910 Total | 1930 Total | 1940 White | 1950 White | 1950 Nonwhite | 1957 White | 1957 Nonwhite | United States 1957 White | United States 1957 Nonwhite |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 40.6 | 45.3 | 55.8 | 62.5 | 66.1 | 59.3 | 67.0 | 60.8 | 67.3 | 61.1 |
| 5 | 48.5 | 51.3 | 56.2 | 60.9 | 63.4 | 58.0 | 64.0 | 59.1 | 64.4 | 59.6 |
| 10 | 44.9 | 47.4 | 51.9 | 56.2 | 58.6 | 53.3 | 59.2 | 54.3 | 59.6 | 54.8 |
| 15 | 40.5 | 42.9 | 47.3 | 51.4 | 53.7 | 48.5 | 54.3 | 49.4 | 54.8 | 50.0 |
| 20 | 36.4 | 38.7 | 42.9 | 46.6 | 48.9 | 44.0 | 49.5 | 44.8 | 50.1 | 45.4 |
| 30 | 29.3 | 30.8 | 34.2 | 37.3 | 39.4 | 35.5 | 40.0 | 36.1 | 40.9 | 36.7 |
| 40 | 23.0 | 23.8 | 26.0 | 28.4 | 30.1 | 27.4 | 30.6 | 27.9 | 31.6 | 28.5 |
| 50 | 17.1 | 17.6 | 18.7 | 20.4 | 21.8 | 20.4 | 22.1 | 20.5 | 23.1 | 21.1 |
| 60 | 12.0 | 12.2 | 12.9 | 13.8 | 15.0 | 15.0 | 15.0 | 14 6 | 15.9 | 15.2 |
| 70 | 7.8 | 8.2 | 8.4 | 8.9 | 9.7 | 10.7 | 9.5 | 10.4 | 10.3 | 11.5 |

FEMALE

| Exact Age | New York City 1901 Total | 1910 Total | 1930 Total | 1940 White | 1950 White | 1950 Nonwhite | 1957 White | 1957 Nonwhite | United States 1957 White | United States 1957 Nonwhite |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 44.9 | 49.5 | 60.0 | 66.8 | 71.2 | 64.2 | 72.2 | 66.0 | 73.7 | 65.9 |
| 5 | 51.9 | 54.9 | 59.7 | 64.6 | 68.0 | 62.6 | 68.9 | 63.9 | 70.5 | 63.9 |
| 10 | 48.2 | 50.9 | 55.2 | 59.8 | 63.2 | 57.8 | 64.0 | 59.1 | 65.6 | 59.1 |
| 15 | 43.8 | 46.5 | 50.5 | 55.0 | 58.3 | 53.0 | 59.1 | 54.2 | 60.7 | 54.2 |
| 20 | 39.7 | 42.2 | 46.0 | 50.2 | 53.4 | 48.4 | 54.2 | 49.4 | 55.9 | 49.4 |
| 30 | 32.3 | 34.1 | 37.4 | 40.8 | 43.8 | 39.5 | 44.6 | 40.3 | 46.2 | 40.3 |
| 40 | 25.5 | 26.6 | 28.9 | 31.7 | 34.4 | 30.9 | 35.1 | 31.5 | 36.7 | 31.8 |
| 50 | 18.8 | 19.5 | 21.0 | 23.2 | 25.6 | 23.4 | 26.2 | 23.7 | 27.7 | 24.1 |
| 60 | 13.0 | 13.4 | 14.3 | 15.8 | 17.7 | 17.3 | 18.0 | 17.3 | 19.3 | 17.9 |
| 70 | 8.4 | 8.7 | 9.1 | 9.9 | 11.1 | 11.9 | 10.9 | 12.2 | 12.2 | 13.6 |

NOTES In 1880 the expectation of life at birth was 29.0 for males and 32.8 for females; in 1920 it was 51.6 for males and 54.8 for females.

## Table 7. Deaths from Accidents* City of New York, 1958

| Type of Accident | All Ages | 0-4 | 5-14 | 15-24 | 25-44 | 45-64 | 65 and over |
|---|---|---|---|---|---|---|---|
| Total | 2,638 | 191 | 117 | 143 | 427 | 681 | 1,079 |
| Occupational | 142 | ..... | ..... | 9 | 53 | 72 | 8 |
| Home | 1,071 | 165 | 37 | 26 | 105 | 191 | 547 |
| Poisonings (gas excepted) | 63 | 24 | ..... | 4 | 20 | 13 | 2 |
| Poisonings by gases and vapors | 16 | ..... | ..... | ..... | 4 | 8 | 4 |
| Fire, explosion | 184 | 28 | 22 | 7 | 30 | 45 | 52 |
| Hot substance and steam | 23 | 8 | 1 | 1 | ..... | 3 | 10 |
| Mechanical suffocation | 30 | 30 | ..... | ..... | ..... | ..... | ..... |
| Firearms | 5 | ..... | 1 | 3 | ..... | 1 | ..... |
| Falls | 668 | 34 | 6 | 6 | 44 | 109 | 469 |
| Other home accidents | 82 | 41 | 7 | 5 | 7 | 12 | 10 |
| Motor Vehicle | 655 | 17 | 53 | 59 | 126 | 186 | 214 |
| Injury to pedestrian | 460 | 9 | 45 | 6 | 52 | 152 | 196 |
| Collision with other motor vehicle | 93 | 4 | 2 | 21 | 36 | 18 | 12 |
| Collision with fixed object | 52 | 1 | 2 | 13 | 24 | 11 | 1 |
| Non-collision | 42 | 3 | 1 | 17 | 14 | 5 | 2 |
| Other motor vehicle | 8 | ..... | 3 | 2 | ..... | ..... | 3 |
| Public Non-Motor Vehicle | 733 | 9 | 26 | 48 | 130 | 216 | 304 |
| Railroad | 13 | ..... | ..... | 1 | 4 | 7 | 1 |
| Subway and elevated train | 44 | ..... | ..... | 6 | 14 | 18 | 6 |
| Other vehicle | 5 | ..... | 1 | 1 | 2 | ..... | 1 |
| Water transportation | 12 | ..... | ..... | 2 | 5 | 4 | 1 |
| Air transportation | 4 | ..... | ..... | ..... | 3 | 1 | ..... |
| Fire, explosion | 14 | ..... | ..... | ..... | 6 | 5 | 3 |
| Hot substance and steam | 2 | ..... | ..... | ..... | 1 | ..... | 1 |
| Drowning | 148 | 3 | 18 | 23 | 37 | 44 | 23 |
| Falls | 459 | 3 | 1 | 13 | 51 | 129 | 262 |
| Other public | 32 | 3 | 6 | 2 | 7 | 8 | 6 |
| Type unknown | 37 | ..... | 1 | 1 | 13 | 16 | 6 |

*Including 37 deaths occurring in New York City as result of accidents out of city.

**Table 8.** **Population, Deaths and Crude Death Rates per**

ANNUAL

| CAUSE | 1901-1905 | 1906-1910 | 1911-1915 | 1916-1920 | 1921-1925 | 1926-1930 | 1931-1935 |
|---|---|---|---|---|---|---|---|
| Infant deaths | 15,611 | 16,609 | 14,060 | 12,004 | 8,985 | 7,662 | 5,521 |
| Rate (a) | 120.8 | 115.2 | 100.0 | 88.2 | 68.9 | 61.0 | 52.0 |
| Neonatal deaths | (b) | (b) | 5,143 | 4,894 | 4,309 | 3,892 | 3,152 |
| Rate (a) | ..... | ..... | 37.4 | 36.0 | 33.0 | 31.0 | 29.7 |
| Infant deaths (under 7 days) | (b) | (b) | (b) | (b) | (b) | (b) | (b) |
| Rate (a) | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Fetal deaths (28 wks. gestation & over) | (b) | (b) | (b) | (b) | (b) | (b) | (b) |
| Ratio (a) | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Perinatal rate (c) | (b) | (b) | (b) | (b) | (b) | (b) | (b) |
| Measles (85) | 616 | 925 | 630 | 559 | 405 | 255 | 107 |
| Rate (d) | 144.0 | 191.8 | 119.8 | 100.5 | 73.2 | 46.8 | 21.4 |
| Whooping cough (56) | 365 | 329 | 353 | 456 | 302 | 226 | 148 |
| Rate (d) | 85.6 | 68.1 | 66.7 | 81.9 | 54.5 | 41.5 | 29.7 |
| Scarlet fever (50) | 832 | 872 | 521 | 150 | 173 | 75 | 81 |
| Rate (d) | 73.8 | 63.2 | 36.3 | 9.5 | 10.5 | 4.4 | 4.8 |
| Diphtheria (55) | 1,980 | 1,765 | 1,302 | 1,144 | 739 | 499 | 131 |
| Rate (d) | 174.5 | 135.9 | 90.1 | 73.3 | 45.0 | 29.7 | 7.7 |
| Typhoid fevers (40, 41) | 691 | 607 | 414 | 180 | 155 | 83 | 58 |
| Rate | 18.3 | 13.6 | 8.2 | 3.3 | 2.5 | 1.2 | 0.8 |
| Meningococcus men. (57) | 846 | 485 | 185 | 184 | 106 | 305 | 142 |
| Rate | 22.3 | 10.8 | 3.7 | 3.4 | 1.7 | 4.6 | 2.0 |
| Tuberculosis of resp. sys. (1-8) | 8,154 | 8,832 | 8,745 | 7,915 | 4,937 | 4,574 | 4,068 |
| Rate | 215.4 | 197.5 | 173.2 | 144.1 | 80.0 | 68.2 | 57.3 |
| Other tuberculosis (10-19) | 1,246 | 1,288 | 1,415 | 1,189 | 754 | 670 | 498 |
| Rate | 32.9 | 28.8 | 28.0 | 21.6 | 12.2 | 10.0 | 7.0 |
| Influenza (480-483) | 449 | 412 | 393 | 4,480 | 725 | 874 | 625 |
| Rate | 11.9 | 9.2 | 7.8 | 81.6 | 11.7 | 13.0 | 8.8 |
| Pneumonia (490-493) | 9,976 | 10,573 | 10,135 | 12,656 | 8,210 | 9,115 | 7,580 |
| Rate | 263.5 | 236.4 | 200.7 | 230.4 | 133.0 | 136.0 | 106.7 |
| Other respiratory (470-475, 500-527) | 3,224 | 2,307 | 1,458 | 1,407 | 689 | 622 | 594 |
| Rate | 85.2 | 51.6 | 28.9 | 25.6 | 11.2 | 9.3 | 8.4 |
| Malignant neoplasms (140-205) (e) | 2,621 | 3,334 | 4,256 | 4,993 | 6,229 | 7,637 | 9,062 |
| Rate | 69.2 | 74.5 | 84.3 | 90.9 | 100.9 | 113.9 | 127.6 |
| Diabetes (260) | 520 | 690 | 916 | 1,063 | 1,284 | 1,624 | 2,140 |
| Rate | 13.7 | 15.4 | 18.1 | 19.4 | 20.8 | 24.2 | 30.1 |
| Appendicitis (550-553) | 472 | 565 | 664 | 686 | 912 | 1,053 | 1,059 |
| Rate | 12.5 | 12.6 | 13.2 | 12.5 | 14.8 | 15.7 | 14.9 |
| Nephritis (590-594) | 5,752 | 5,600 | 5,499 | 5,676 | 4,108 | 3,411 | 3,608 |
| Rate | 151.9 | 125.2 | 108.9 | 103.4 | 66.5 | 50.9 | 50.8 |
| Circulatory system (400-468) | 5,954 | 9,148 | 12,699 | 14,792 | 18,114 | 21,815 | 22,706 |
| Rate | 157.3 | 204.5 | 251.5 | 269.3 | 293.3 | 325.5 | 332.8 |
| Vascular lesions (330-334) (f) | 2,593 | 1,790 | 970 | 834 | 719 | 723 | 1,433 |
| Rate | 68.4 | 40.0 | 19.2 | 15.2 | 11.6 | 10.8 | 20.2 |
| Cardiovascular-renal (330-334, 400-468, ↑ 590-594) | 14,297 | 16,538 | 19,168 | 21,302 | 22,941 | 25,949 | 28,747 |
| Rate | 377.6 | 369.7 | 379.6 | 387.9 | 371.4 | 387.2 | 404.8 |
| Suicides (963, 970-979) (i) | 761 | 825 | 866 | 742 | 842 | 1,163 | 1,369 |
| Rate | 20.1 | 18.4 | 17.2 | 13.5 | 13.6 | 17.4 | 19.3 |
| Homicides (964, 965, 980-999) | 143 | 247 | 293 | 271 | 334 | 405 | 522 |
| Rate | 3.8 | 5.5 | 5.8 | 4.9 | 5.4 | 6.0 | 7.4 |
| Automobile accidents (810-835) | (b) | (b) | 253 | 658 | 929 | 1,175 | 1,167 |
| Rate | ..... | ..... | 5.0 | 12.0 | 15.0 | 17.5 | 16.4 |
| Home accidents (g) | (b) | (b) | (b) | (b) | (b) | (b) | (b) |
| Rate | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Other accidents | 3,521 | 3,549 | 3,516 | 3,426 | 3,138 | 3,574 | 3,205 |
| Rate | 93.0 | 79.3 | 69.6 | 62.4 | 50.8 | 53.3 | 45.1 |
| Puerperal diseases (640-689) | 694 | 745 | 694 | 664 | 689 | 651 | 608 |
| Rate—per 10,000 live births | 53.7 | 51.7 | 49.4 | 48.8 | 52.8 | 51.8 | 57.3 |

Numbers following disease names are numbers of the International List, 7th Revision. (a) Rates are per 1,000 live births. (b) Not available (c) Fetal deaths (28 wks. +) plus infant deaths (—7 days) per 1,000 live births plus fetal deaths (28+). (d) Rates for measles and whooping cough, per 100,000 under five years; rates for scarlet fever and diphtheria, per 100,000 under fifteen years, (e) Includes neoplasms of lymphatic and haematopoietic tissues. (f) Coding changed in 1935, giving greater weight to cerebral hemorrhage than to arteriosclerosis. The rate for 1931-1934 was 9.1, and for 1935 it was 44.9.

**100,000 Population, City of New York, 1901 to 1958**

| AVERAGE | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1936-1940 | 1941-1945 | 1946-1948 | Fifth Rev. 1949-1951 | Sixth Rev. 1949-1951 | Ratio Sixth/Fifth | 1952-1955 | 1956 | 1957 | 1958 |
| 4,079 | 3,828 | 4,298 | 3,882 | 3,882 | ..... | 4,021 | 4,052 | 4,176 | 4,435 |
| 39.8 | 30.3 | 26.8 | 24.5 | 24.5 | ..... | 24.6 | 24.5 | 25.0 | 26.4 |
| 2,631 | 2,764 | 3,298 | 2,989 | 2,989 | ..... | 3,032 | 3,072 | 3,211 | 3,286 |
| 25.7 | 21.9 | 20.5 | 18.9 | 18.9 | ..... | 18.5 | 18.6 | 19.2 | 19.6 |
| 2,101 | 2,338 | 2,845 | 2,604 | 2,604 | ..... | 2,713 | 2,746 | 2,900 | 2,958 |
| 20.5 | 18.5 | 17.7 | 16.4 | 16.4 | ..... | 16.6 | 16.6 | 17.4 | 17.6 |
| 2,589 | 2,709 | 2,902 | 2,441 | 2,441 | ..... | 2,310 | 2,196 | 2,337 | 2,439 |
| 25.3 | 21.4 | 18.1 | 15.4 | 15.4 | ..... | 14.1 | 13.3 | 14.0 | 14.5 |
| 44.7 | 39.1 | 35.1 | 31.3 | 31.3 | | 30.3 | 29.5 | 30.9 | 31.7 |
| 31 | 14 | 16 | 10 | 10 | ..... | 12 | 11 | 3 | 16 |
| 6.5 | 2.6 | 2.4 | 1.4 | 1.4 | ..... | 1.8 | 1.6 | 0.4 | 2.4 |
| 58 | 43 | 11 | 6 | 6 | ..... | 2 | 2 | 0 | 0 |
| 12.0 | 7.9 | 1.6 | 0.8 | 0.8 | ..... | 0.3 | 0.3 | ..... | ..... |
| 28 | 8 | 1 | 0 | 0 | ..... | 0 | 1 | 0 | 0 |
| 1.7 | 0.5 | 0.1 | ..... | ..... | ..... | ..... | 0.1 | ..... | ..... |
| 30 | 11 | 12 | 2 | 2 | ..... | 1 | 0 | 0 | 0 |
| 1.9 | 0.7 | 0.7 | 0.1 | 0.1 | ..... | 0.1 | ..... | ..... | ..... |
| 24 | 10 | 5 | 3 | 2 | ..... | 1 | 0 | 1 | 1 |
| 0.3 | 0.1 | 0.1 | h | h | ..... | h | ..... | h | h |
| 87 | 135 | 40 | 33 | 32 | ..... | 34 | 18 | 26 | 17 |
| 1.2 | 1.8 | 0.5 | 0.4 | 0.4 | ..... | 0.4 | 0.2 | 0.3 | 0.2 |
| 3,680 | 3,281 | 2,932 | 2,253 | 2,173 | 1.0 | 1,178 | 916 | 931 | 772 |
| 50.0 | 43.2 | 37.7 | 28.4 | 27.4 | ..... | 14.6 | 11.3 | 11.5 | 9.6 |
| 345 | 304 | 229 | 184 | 172 | 0.9 | 97 | 58 | 51 | 61 |
| 4.7 | 4.0 | 2.9 | 2.3 | 2.2 | ..... | 1.2 | 0.7 | 0.6 | 0.8 |
| 250 | 108 | 48 | 46 | 57 | 1.2 | 51 | 30 | 164 | 59 |
| 3.4 | 1.4 | 0.6 | 0.6 | 0.7 | ..... | 0.6 | 0.4 | 2.0 | 0.7 |
| 5,087 | 3,345 | 2,966 | 2,457 | 2,412 | 1.0 | 2,613 | 2,689 | 3,425 | 3,538 |
| 69.1 | 44.0 | 38.2 | 31.0 | 30.4 | ..... | 32.4 | 33.3 | 42.4 | 44.0 |
| 536 | 492 | 424 | 424 | 450 | 1.1 | 461 | 514 | 551 | 667 |
| 7.3 | 6.5 | 5.5 | 5.3 | 5.7 | ..... | 5.7 | 6.4 | 6.8 | 8.3 |
| 11,257 | 13,169 | 14,627 | 15,460 | 15,556 | 1.0 | 16,553 | 16,896 | 16,746 | 16,659 |
| 152.9 | 173.3 | 188.2 | 194.8 | 196.0 | ..... | 205.3 | 209.0 | 207.3 | 207.1 |
| 2,787 | 3,131 | 3,423 | 3,688 | 1,583 | 0.4 | 1,644 | 1,527 | 1,486 | 1,624 |
| 37.9 | 41.2 | 44.0 | 46.5 | 19.9 | ..... | 20.4 | 18.9 | 18.4 | 20.2 |
| 857 | 441 | 273 | 205 | 192 | 0.9 | 162 | 167 | 138 | 129 |
| 11.6 | 5.8 | 3.5 | 2.6 | 2.4 | ..... | 2.0 | 2.1 | 1.7 | 1.6 |
| 3,675 | 3,081 | 2,574 | 2,073 | 570 | 0.3 | 556 | 582 | 626 | 630 |
| 49.9 | 40.6 | 33.1 | 26.1 | 7.2 | ..... | 6.9 | 7.2 | 7.7 | 7.8 |
| 25,711 | 30,886 | 32,539 | 32,547 | 36,206 | 1.1 | 37,724 | 37,817 | 39,267 | 39,402 |
| 349.2 | 406.6 | 418.7 | 410.2 | 456.3 | ..... | 467.9 | 467.7 | 486.0 | 490.0 |
| 3,846 | 3,611 | 3,710 | 3,811 | 5,099 | 1.3 | 5,688 | 5,571 | 5,907 | 6,149 |
| 52.2 | 47.5 | 47.7 | 48.0 | 64.3 | ..... | 70.6 | 68.9 | 73.1 | 76.5 |
| 33,232 | 37,578 | 38,823 | 38,431 | 41,875 | 1.1 | 43,968 | 43,970 | 45,800 | 46,181 |
| 451.3 | 494.7 | 499.5 | 484.3 | 527.8 | | 545.4 | 543.8 | 566.8 | 574.3 |
| 1,191 | 907 | 930 | 863 | 863 | 1.0 | 649 | 591 | 545 | 793 |
| 16.2 | 11.9 | 12.0 | 10.9 | 10.9 | ..... | 8.0 | 7.3 | 6.7 | 9.9 |
| 331 | 265 | 362 | 318 | 318 | 1.0 | 340 | 313 | 318 | 365 |
| 4.5 | 3.5 | 4.7 | 4.0 | 4.0 | ..... | 4.2 | 3.9 | 3.9 | 4.5 |
| 920 | 728 | 635 | 593 | 600 | 1.0 | 634 | 632 | 644 | 655 |
| 12.5 | 9.6 | 8.2 | 7.5 | 7.6 | ..... | 7.8 | 7.8 | 8.0 | 8.1 |
| 1,546 | 1,823 | 1,941 | (b) | 1,699 | ..... | 1,568 | 1,302 | 1,228 | 1,071 |
| 21.0 | 24.0 | 25.0 | ..... | 21.4 | ..... | 19.5 | 16.1 | 15.2 | 13.3 |
| 1,561 | 1,268 | 1,314 | (b) | 1,008 | ..... | 882 | 954 | 1,018 | 912 |
| 21.2 | 16.7 | 16.9 | ..... | 12.7 | ..... | 10.9 | 11.8 | 12.6 | 11.3 |
| 372 | 255 | 178 | 137 | 115 | 0.8 | 102 | 104 | 107 | 103 |
| 36.3 | 20.2 | 11.1 | 8.6 | 7.3 | ..... | 6.2 | 6.3 | 6.4 | 6.1 |

(g) Beginning with 1956 accidents occurring in other than residential hospitals were classified as "public" rather than "home," thus reducing home accident totals. Beginning with 1958 accidents in all hospitals were classified as "public" resulting in a small additional drop in home accident totals. (h) Rate is less than 0.05. (i) The 7th Revision of the International List now classifies deaths reported as due to "fall or jump" from high places as suicides. Previously such deaths had been classified as accidental deaths.

## Table 9. Infant Mortality by Ethnic Group, New York City, 1950-1958

| Ethnic Group | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 |
|---|---|---|---|---|---|---|---|---|---|
| Live Births | | | | | | | | | |
| Total | 155,818 | 162,755 | 164,165 | 161,499 | 164,060 | 165,150 | 165,553 | 166,977 | 167,775 |
| Puerto Rican | 9,206 | 10,479 | 12,215 | 14,431 | 16,891 | 18,365 | 19,545 | 20,553 | 21,863 |
| Nonwhite | 21,945 | 23,180 | 23,297 | 23,975 | 25,465 | 27,093 | 29,103 | 30,431 | 32,546 |
| Other | 124,667 | 129,096 | 128,653 | 123,093 | 121,704 | 119,692 | 116,905 | 115,993 | 113,366 |
| Infant Deaths | | | | | | | | | |
| Total | 3,858 | 3,847 | 3,980 | 3,945 | 3,891 | 4,268 | 4,052 | 4,176 | 4,435 |
| Puerto Rican | 304 | 314 | 370 | 419 | 487 | 641 | 562 | 632 | 673 |
| Nonwhite | 864 | 882 | 978 | 971 | 948 | 1,112 | 1,113 | 1,276 | 1,494 |
| Other | 2,690 | 2,651 | 2,632 | 2,555 | 2,456 | 2,515 | 2,377 | 2,268 | 2,358 |
| Infant Mortality Rates* | | | | | | | | | |
| Total | 24.8 | 23.6 | 24.2 | 24.4 | 23.7 | 25.8 | 24.5 | 25.0 | 26.4 |
| Puerto Rican | 33.0 | 30.0 | 30.3 | 29.0 | 28.8 | 34.9 | 28.8 | 30.7 | 30.8 |
| Nonwhite | 39.4 | 38.0 | 42.0 | 40.5 | 37.2 | 41.0 | 38.2 | 41.9 | 43.1 |
| Other | 21.6 | 20.5 | 20.5 | 20.8 | 20.2 | 21.0 | 20.3 | 19.6 | 20.8 |
| Deaths Under 28 Days (Neonatal) | | | | | | | | | |
| Total | 2,971 | 2,998 | 3,009 | 2,945 | 2,938 | 3,235 | 3,072 | 3,211 | 3,286 |
| Puerto Rican | 207 | 240 | 280 | 298 | 348 | 469 | 413 | 463 | 486 |
| Nonwhite | 671 | 668 | 715 | 717 | 707 | 851 | 840 | 958 | 1,021 |
| Other | 2,093 | 2,090 | 2,014 | 1,930 | 1,883 | 1,915 | 1,819 | 1,790 | 1,779 |
| Neonatal Mortality Rates* | | | | | | | | | |
| Total | 19.1 | 18.4 | 18.3 | 18.2 | 17.9 | 19.6 | 18.6 | 19.2 | 19.6 |
| Puerto Rican | 22.5 | 22.9 | 22.9 | 20.6 | 20.6 | 25.5 | 21.1 | 22.5 | 22.2 |
| Nonwhite | 30.6 | 28.8 | 30.7 | 29.9 | 27.8 | 31.4 | 28.9 | 31.5 | 31.4 |
| Other | 16.8 | 16.2 | 15.7 | 15.7 | 15.5 | 16.0 | 15.6 | 15.4 | 15.7 |

*Rates per 1,000 live births.

## Table 10. Infant Mortality Rates (Per 100 Live Births) by Weight* and Color, New York City, 1958

| Birth Weight (in grams) | Under One Year | | | Under 28 Days | | |
|---|---|---|---|---|---|---|
| | Total | White | Nonwhite | Total | White | Nonwhite |
| Less than 1001 | 93.7 | 97.7 | 88.5 | 91.5 | 94.6 | 87.5 |
| 1001-1500 | 49.3 | 52.7 | 44.3 | 45.3 | 49.0 | 40.0 |
| 1501-2000 | 18.2 | 20.4 | 14.3 | 15.8 | 18.1 | 11.9 |
| 2001-2500 | 4.6 | 4.7 | 4.5 | 3.2 | 3.4 | 2.7 |
| 2501-3000 | 1.6 | 1.5 | 2.1 | 0.9 | 0.9 | 0.9 |
| 3001-3500 | 1.1 | 0.9 | 1.6 | 0.5 | 0.5 | 0.7 |
| 3501-4000 | 0.9 | 0.8 | 1.4 | 0.5 | 0.4 | 0.6 |
| 4001-4500 | 1.0 | 1.0 | 1.6 | 0.7 | 0.6 | 0.7 |
| 4501-5000 | 1.3 | 1.2 | 2.4 | 1.1 | 1.0 | 1.6 |
| 5001 and over | 4.4 | 5.1 | ..... | 3.7 | 4.3 | ..... |
| Under 2501 | 17.0 | 16.2 | 18.4 | 15.1 | 14.5 | 16.3 |
| 2501 and over | 1.2 | 1.1 | 1.7 | 0.6 | 0.6 | 0.7 |
| Total | 2.6 | 2.2 | 4.3 | 2.0 | 1.7 | 3.1 |

*Not stated weights allocated according to gestation.

## Table 11. Live Births by Age of Mother, City of New York, 1958

| | Total Births | AGE OF MOTHER | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Under 15 Years | 15-19 | 20-24 | 25-29 | 30-34 | 35-39 | 40 & Over | Not Stated |
| Total Births | 167,775 | 167 | 13,635 | 51,674 | 51,142 | 32,383 | 15,116 | 3,594 | 64 |
| **Sex:** | | | | | | | | | |
| Male | 86,037 | 86 | 7,088 | 26,468 | 26,234 | 16,574 | 7,748 | 1,809 | 30 |
| Female | 81,738 | 81 | 6,547 | 25,206 | 24,908 | 15,809 | 7,368 | 1,785 | 34 |
| **Race of Child and Nativity of Mother** | | | | | | | | | |
| Total White | 134,373 | 48 | 8,577 | 40,534 | 42,776 | 26,842 | 12,518 | 3,037 | 41 |
| Native | 119,354 | 47 | 8,155 | 37,102 | 38,074 | 22,936 | 10,418 | 2,597 | 25 |
| Foreign | 14,983 | 1 | 420 | 3,427 | 4,694 | 3,900 | 2,096 | 440 | 5 |
| Not Stated | 36 | ..... | 2 | 5 | 8 | 6 | 4 | ..... | 11 |
| Total Nonwhite | 33,402 | 119 | 5,058 | 11,140 | 8,366 | 5,541 | 2,598 | 557 | 23 |
| Native | 32,376 | 119 | 5,016 | 10,884 | 8,015 | 5,297 | 2,503 | 519 | 23 |
| Indian | 29 | ..... | 5 | 10 | 7 | 4 | 3 | ..... | ..... |
| Chinese | 766 | ..... | 33 | 196 | 248 | 182 | 69 | 38 | ..... |
| Japanese | 162 | ..... | 1 | 37 | 63 | 41 | 20 | ..... | ..... |
| Other nonwhite | 69 | ..... | 3 | 13 | 33 | 17 | 3 | ..... | ..... |
| **Number of Child in Order of Birth** (Live Births Only) | | | | | | | | | |
| First child | 55,293 | 164 | 9,633 | 24,944 | 13,262 | 5,027 | 1,831 | 417 | 15 |
| Second child | 50,614 | 2 | 3,206 | 16,482 | 18,093 | 9,003 | 3,204 | 616 | 8 |
| Third child | 30,603 | 1 | 648 | 6,467 | 10,681 | 8,270 | 3,817 | 715 | 4 |
| Fourth child | 14,954 | ..... | 123 | 2,471 | 4,703 | 4,583 | 2,472 | 597 | 5 |
| Fifth child | 7,575 | ..... | 19 | 895 | 2,324 | 2,388 | 1,506 | 440 | 3 |
| Sixth child | 3,884 | ..... | 2 | 295 | 1,102 | 1,382 | 850 | 251 | 2 |
| Seventh child | 2,171 | ..... | ..... | 81 | 580 | 761 | 567 | 180 | 2 |
| Eighth child | 1,231 | ..... | ..... | 25 | 231 | 497 | 365 | 113 | ..... |
| Ninth child | 631 | ..... | ..... | 4 | 98 | 220 | 210 | 99 | ..... |
| Tenth child or more | 764 | ..... | ..... | 3 | 56 | 247 | 292 | 166 | ..... |
| Not stated | 55 | ..... | 4 | 7 | 12 | 5 | 2 | ..... | 25 |
| **Weight at Birth** | | | | | | | | | |
| 1000 grams and under | 1,082 | 1 | 143 | 323 | 270 | 224 | 95 | 24 | 2 |
| 1001-1500 grams | 1,093 | 5 | 154 | 307 | 289 | 198 | 108 | 32 | ..... |
| 1501-2000 grams | 2,643 | 8 | 316 | 841 | 696 | 459 | 250 | 73 | ..... |
| 2001-2500 grams | 10,511 | 15 | 1,176 | 3,264 | 2,933 | 1,933 | 930 | 257 | 3 |
| 2501 and over | 151,835 | 137 | 11,797 | 46,759 | 46,776 | 29,449 | 13,661 | 3,194 | 32 |
| Not stated | 641 | 1 | 49 | 180 | 178 | 120 | 72 | 14 | 27 |
| **Plurality** | | | | | | | | | |
| Single | 164,073 | 167 | 13,441 | 50,786 | 49,982 | 31,445 | 14,683 | 3,505 | 64 |
| Twins | 3,659 | ..... | 194 | 882 | 1,150 | 923 | 424 | 86 | ..... |
| Triplets | 43 | ..... | ..... | 6 | 10 | 15 | 9 | 3 | ..... |
| **Place of Birth** | | | | | | | | | |
| Home (a) | 2,050 | 2 | 220 | 648 | 585 | 374 | 168 | 46 | 7 |
| Hospital | | | | | | | | | |
| Voluntary | 100,661 | 80 | 5,903 | 29,331 | 32,697 | 20,855 | 9,482 | 2,295 | 18 |
| Proprietary | 28,684 | 2 | 1,085 | 8,287 | 9,426 | 6,193 | 3,005 | 678 | 8 |
| Municipal | 34,961 | 82 | 6,251 | 12,859 | 8,052 | 4,777 | 2,367 | 560 | 13 |
| Federal and State | 1,738 | 1 | 158 | 495 | 338 | 160 | 75 | 11 | ..... |
| Foundling | 17 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 17 |
| All others (b) | 163 | ..... | 17 | 54 | 44 | 24 | 19 | 4 | 1 |
| **Attendant** | | | | | | | | | |
| M.D. not in hospital | 202 | ..... | 7 | 46 | 62 | 47 | 28 | 10 | 2 |
| Midwife | 74 | ..... | 5 | 15 | 28 | 16 | 9 | 1 | ..... |
| Ambulance | 1,859 | 2 | 218 | 614 | 521 | 320 | 141 | 38 | 5 |
| In hospital: | | | | | | | | | |
| Private service | 102,275 | 7 | 3,374 | 28,355 | 35,052 | 22,732 | 10,336 | 2,404 | 15 |
| General service | 63,270 | 158 | 10,024 | 22,617 | 15,461 | 9,253 | 4,593 | 1,140 | 24 |
| All others | 95 | ..... | 7 | 27 | 18 | 15 | 9 | 1 | 18 |

(a) Includes 1,772 ambulance deliveries, formerly included in hospital of report.
(b) Includes 87 ambulance deliveries, formerly included in hospital of report.

## Table 12. Population, Births, Deaths and Infant Mortality by Health Center District of Residence, New York City, 1958

| | Population Estimates July 1, 1958 | Live Births | | Births to Puerto Rican Mothers | | Nonwhite Births | | Deaths All Causes | | Infant Mortality | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Number | Rate* | Number | Percent of Total Live Births | Number | Percent of Total Live Births | Number | Rate* | Number | Rate** |
| NEW YORK CITY | 8,042,000 | 167,775 | 20.9 | 21,863 | 13.0 | 32,546 | 19.4 | 84,586 | 10.5 | 4,435 | 26.4 |
| KNOWN RESIDENTS | 8,042,000 | 155,003 | † | 21,722 | 14.0 | 32,112 | 20.7 | 79,988 | † | 4,138 | 26.7 |
| MANHATTAN | 1,831,000 | 32,925 | 18.0 | 9,247 | 28.1 | 11,085 | 33.7 | 21,457 | 11.7 | 1,108 | 33.7 |
| Central Harlem | 255,000 | 6,228 | 24.4 | 323 | 5.2 | 5,812 | 93.3 | 2,979 | 11.7 | 279 | 44.8 |
| East Harlem | 186,000 | 4,563 | 24.5 | 2,268 | 49.7 | 1,191 | 26.1 | 1,832 | 9.8 | 172 | 37.7 |
| Kips Bay-Yorkville | 243,000 | 2,203 | 9.1 | 90 | 4.1 | 56 | 2.5 | 2,983 | 12.3 | 63 | 28.6 |
| Lower East Side | 282,000 | 5,610 | 19.9 | 2,488 | 44.3 | 780 | 12.0 | 3,533 | 12.5 | 151 | 26.9 |
| Lower West Side | 294,000 | 4,254 | 14.5 | 1,511 | 35.5 | 415 | 9.8 | 3,955 | 13.5 | 143 | 33.6 |
| Riverside | 254,000 | 5,531 | 21.8 | 1,983 | 35.9 | 1,552 | 28.1 | 3,192 | 12.6 | 186 | 33.6 |
| Washington Heights | 317,000 | 4,536 | 14.3 | 584 | 12.9 | 1,279 | 28.2 | 2,983 | 9.4 | 114 | 25.1 |
| BRONX | 1,444,000 | 27,079 | 18.8 | 5,796 | 21.4 | 4,324 | 16.0 | 14,020 | 9.7 | 717 | 26.5 |
| Fordham-Riverdale | 225,000 | 3,731 | 16.6 | 89 | 2.4 | 89 | 2.4 | 2,548 | 11.3 | 78 | 20.9 |
| Morrisania | 285,000 | 6,155 | 21.6 | 2,012 | 32.7 | 2,079 | 33.8 | 2,589 | 9.1 | 198 | 32.2 |
| Mott Haven | 220,000 | 5,135 | 23.3 | 2,634 | 51.3 | 909 | 17.7 | 1,929 | 8.8 | 179 | 34.9 |
| Pelham Bay | 151,000 | 2,793 | 18.5 | 80 | 2.9 | 402 | 14.4 | 1,461 | 9.7 | 76 | 27.2 |
| Tremont | 298,000 | 4,800 | 16.1 | 757 | 15.8 | 489 | 10.2 | 3,283 | 11.0 | 106 | 22.1 |
| Westchester | 265,000 | 4,465 | 16.8 | 224 | 5.0 | 356 | 8.0 | 2,210 | 8.3 | 80 | 17.9 |
| BROOKLYN | 2,702,000 | 56,015 | 20.7 | 6,278 | 11.2 | 12,408 | 22.2 | 26,777 | 9.9 | 1,501 | 26.8 |
| Bay Ridge | 326,000 | 5,781 | 17.5 | 35 | 0.6 | 40 | 0.7 | 2,914 | 8.9 | 99 | 17.4 |
| Bedford | 298,000 | 7,521 | 25.2 | 437 | 5.8 | 5,397 | 71.8 | 2,908 | 9.8 | 287 | 38.2 |
| Brownsville | 276,000 | 6,172 | 22.4 | 1,050 | 17.0 | 1,447 | 23.4 | 2,867 | 10.4 | 166 | 26.9 |
| Bushwick | 218,000 | 4,934 | 22.6 | 538 | 10.9 | 1,086 | 22.0 | 2,398 | 11.0 | 114 | 23.1 |
| Flatbush | 510,000 | 8,163 | 16.0 | 33 | 0.4 | 189 | 2.3 | 4,976 | 9.8 | 185 | 22.7 |
| Fort Greene | 205,000 | 5,821 | 28.4 | 1,153 | 19.8 | 2,906 | 49.9 | 2,226 | 10.9 | 225 | 38.7 |
| Gravesend | 302,000 | 5,470 | 18.1 | 122 | 2.2 | 210 | 3.8 | 2,795 | 9.3 | 105 | 19.2 |
| Red Hook-Gowanus | 156,000 | 4,028 | 25.8 | 1,124 | 27.9 | 749 | 18.6 | 1,754 | 11.2 | 110 | 27.3 |
| Sunset Park | 227,000 | 3,855 | 17.0 | 355 | 0.9 | 26 | 0.7 | 2,030 | 8.9 | 96 | 24.9 |
| Wmsbrg.-Greenpoint | 184,000 | 4,350 | 23.6 | 1,431 | 32.9 | 358 | 8.2 | 1,909 | 10.4 | 114 | 26.2 |
| QUEENS | 1,855,000 | 34,461 | 18.6 | 377 | 1.1 | 4,033 | 11.7 | 15,629 | 8.4 | 718 | 20.8 |
| Astoria-L. I. C. | 255,000 | 4,905 | 19.2 | 124 | 2.5 | 355 | 7.2 | 2,441 | 9.6 | 98 | 20.0 |
| Corona | 254,000 | 4,322 | 17.0 | 54 | 1.2 | 612 | 14.2 | 2,013 | 7.9 | 98 | 22.7 |
| Flushing | 477,000 | 7,976 | 16.7 | 39 | 0.5 | 215 | 2.7 | 2,982 | 6.3 | 152 | 19.1 |
| Jamaica East | 293,000 | 5,752 | 19.6 | 60 | 1.0 | 2,123 | 36.9 | 2,445 | 8.3 | 146 | 25.4 |
| Jamaica West | 309,000 | 6,422 | 20.8 | 85 | 1.3 | 672 | 10.5 | 3,084 | 10.0 | 135 | 21.0 |
| Maspeth-Forest Hills | 267,000 | 5,084 | 19.0 | 15 | 0.3 | 56 | 1.1 | 2,664 | 10.0 | 89 | 17.5 |
| RICHMOND | 210,000 | 4,523 | 21.5 | 24 | 0.5 | 262 | 5.8 | 2,105 | 10.0 | 94 | 20.8 |
| KNOWN NON-RESIDENTS | | 11,566 | ..... | 49 | ..... | 218 | ..... | 3,983 | ..... | 265 | ..... |
| PERMANENT RES. UNKNOWN | | 1,206 | ..... | 92 | ..... | 216 | ..... | 615 | ..... | 32 | ..... |

*Rate per 1,000 population.

**Rate per 1,000 live births.

†This figure is not computed because known resident totals include only events occurring in New York City to known residents, and do not include events occurring outside of city to New York City residents.

## Table 13. Population in 1957 and Deaths in 1958, City of New York

| Age | 1957 Population by Age, Color and Sex | | | | Deaths in 1958 by Age, Color and Sex | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | White | | Nonwhite | | White | | Negro | | Other | |
| | Male | Female | Male | Female | Male | Female | Male | Female | Male | Female |
| All ages | 3,302,599 | 3,511,621 | 455,543 | 525,708 | 41,801 | 32,984 | 4,942 | 4,514 | 312 | 33 |
| Under 5 | 274,010 | 263,127 | 56,615 | 56,301 | 1,980 | 1,468 | 862 | 714 | 11 | 8 |
| 5-9 | 262,850 | 253,392 | 52,026 | 52,190 | 173 | 91 | 28 | 32 | 1 | 1 |
| 10-14 | 246,909 | 238,498 | 34,629 | 35,718 | 117 | 66 | 24 | 12 | 1 | ..... |
| 15-19 | 194,441 | 200,397 | 25,132 | 30,138 | 156 | 93 | 33 | 25 | ..... | ..... |
| 20-24 | 192,058 | 222,393 | 26,668 | 40,194 | 217 | 129 | 87 | 58 | 1 | ..... |
| 25-29 | 237,196 | 246,194 | 35,789 | 49,296 | 240 | 194 | 130 | 119 | 1 | 2 |
| 30-34 | 234,104 | 252,736 | 42,610 | 54,883 | 382 | 247 | 222 | 165 | 1 | 2 |
| 35-39 | 234,121 | 268,057 | 42,455 | 51,675 | 579 | 436 | 282 | 231 | 4 | 1 |
| 40-44 | 240,034 | 277,921 | 36,600 | 41,499 | 981 | 751 | 303 | 293 | 15 | 2 |
| 45-49 | 243,279 | 266,955 | 29,381 | 32,500 | 1,700 | 1,133 | 369 | 317 | 10 | 1 |
| 50-54 | 245,308 | 254,977 | 25,112 | 26,147 | 2,991 | 1,675 | 453 | 382 | 29 | 4 |
| 55-59 | 206,646 | 211,759 | 18,074 | 18,426 | 4,327 | 2,284 | 513 | 400 | 47 | ..... |
| 60-64 | 184,749 | 194,142 | 12,730 | 13,446 | 5,421 | 3,138 | 492 | 407 | 57 | 3 |
| 65-69 | 141,526 | 158,507 | 8,710 | 10,528 | 6,393 | 4,146 | 423 | 432 | 52 | 4 |
| 70-74 | 88,872 | 100,210 | 4,926 | 6,383 | 6,016 | 4,936 | 319 | 327 | 47 | 1 |
| 75 and over | 76,496 | 102,356 | 4,086 | 6,384 | 10,128 | 12,197 | 402 | 600 | 35 | 4 |

## Table 14. Cases of Reportable Infectious Diseases, City of New York, 1900-1958

| Year | Pulmonary Tuberculosis | Diphtheria | Measles | Scarlet Fever | Chickenpox | Typhoid Fevers | Whooping Cough | Meningococcus Meningitis | Poliomyelitis | Syphilis | Gonorrhea | Influenza | Pneumonia | Epidemic Encephalitis |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1900 | 11,997 | 12,913 | 19,298 | 6,683 | 1,226 | 2,658 | 174 | 7 | | | | | | |
| 1901 | 13,703 | 12,329 | 11,990 | 16,692 | 2,437 | 2,748 | 113 | 13 | | | | | | |
| 1902 | 12,914 | 15,319 | 20,251 | 11,894 | 3,269 | 3,871 | 313 | 10 | | | | | | |
| 1903 | 15,214 | 18,317 | 13,689 | 10,887 | 4,181 | 3,671 | 1,066 | 20 | | | | | | |
| 1904 | 18,723 | 18,158 | 32,861 | 13,495 | 4,263 | 3,412 | 1,016 | 482 | | | | | | |
| 1905 | 20,831 | 13,686 | 19,026 | 8,071 | 5,473 | 4,326 | 2,637 | 2,755 | | | | | | |
| 1906 | 20,085 | 14,757 | 38,653 | 7,881 | 4,667 | 3,467 | 2,177 | 1,032 | | | | | | |
| 1907 | 19,725 | 15,276 | 16,637 | 15,788 | 4,308 | 4,426 | 1,920 | 828 | | | | | | |
| 1908 | 23,325 | 16,431 | 38,276 | 24,426 | 5,928 | 3,058 | 1,182 | 380 | | | | | | |
| 1909 | 25,667 | 15,097 | 31,950 | 12,475 | 6,765 | 3,499 | 2,752 | 346 | | | | | | |
| 1910 | 32,065 | 16,940 | 35,374 | 18,924 | 5,534 | 3,582 | 2,018 | 242 | | | | | | |
| 1911 | 24,513 | 13,485 | 25,540 | 15,794 | 6,758 | 3,450 | 3,210 | 266 | 358 | | | | | |
| 1912 | 22,752 | 13,533 | 39,018 | 12,716 | 7,649 | 3,076 | 2,132 | 250 | 504 | | | | | |
| 1913 | 22,674 | 14,845 | 29,350 | 10,739 | 6,897 | 2,643 | 3,529 | 232 | 310 | 10,623 | 7,440 | | | |
| 1914 | 21,604 | 17,129 | 25,793 | 11,105 | 9,632 | 2,260 | 3,798 | 318 | 129 | 21,128 | 9,526 | | | |
| 1915 | 22,141 | 15,279 | 38,186 | 9,879 | 8,721 | 2,455 | 6,771 | 174 | 95 | 17,335 | 9,709 | | | |
| 1916 | 19,297 | 13,521 | 21,603 | 5,814 | 9,617 | 1,617 | 7,460 | 263 | 9,023 | 20,128 | 6,341 | | | |
| 1917 | 17,494 | 12,624 | 27,519 | 6,260 | 8,548 | 1,442 | 5,597 | 322 | 139 | 19,833 | 8,312 | | | |
| 1918 | 14,439 | 11,454 | 28,675 | 4,460 | 4,196 | 1,238 | 5,558 | 477 | 134 | 17,320 | 6,538 | | | |
| 1919 | 14,570 | 14,014 | 8,194 | 4,594 | 5,326 | 854 | 1,658 | 317 | 42 | 19,241 | 5,677 | 25,218 | 10,325 | 118 |
| 1920 | 14,035 | 14,166 | 35,083 | 6,537 | 5,534 | 969 | 7,530 | 244 | 154 | 19,440 | 4,535 | 69,824 | 25,983 | 573 |
| 1921 | 12,966 | 15,110 | 7,738 | 13,516 | 8,041 | 899 | 5,808 | 279 | 588 | 14,096 | 5,287 | 2,486 | 14,143 | 528 |
| 1922 | 13,329 | 10,427 | 40,569 | 10,269 | 5,738 | 790 | 4,799 | 218 | 224 | 13,199 | 5,599 | 21,042 | 19,121 | 611 |
| 1923 | 11,336 | 8,050 | 13,999 | 8,237 | 8,671 | 890 | 4,484 | 133 | 577 | 16,879 | 6,817 | 16,061 | 15,952 | 923 |
| 1924 | 11,924 | 9,687 | 33,561 | 8,399 | 8,260 | 1,687 | 8,244 | 156 | 344 | 16,402 | 6,137 | 1,753 | 18,594 | 465 |
| 1925 | 10,955 | 9,051 | 9,483 | 8,840 | 7,546 | 1,417 | 4,826 | 120 | 307 | 15,630 | 5,466 | 1,745 | 15,651 | 327 |
| 1926 | 10,498 | 7,531 | 39,750 | 7,968 | 6,757 | 913 | 3,487 | 170 | 111 | 17,700 | 4,728 | 5,911 | 22,661 | 297 |
| 1927 | 10,873 | 13,507 | 2,101 | 18,339 | 9,444 | 762 | 6,052 | 177 | 537 | 24,324 | 7,006 | 2,048 | 18,273 | 232 |
| 1928 | 11,614 | 10,776 | 35,008 | 10,586 | 7,082 | 688 | 5,876 | 1,102 | 572 | 25,034 | 7,431 | 2,878 | 21,079 | 193 |
| 1929 | 11,938 | 8,548 | 2,537 | 7,952 | 9,264 | 607 | 2,944 | 1,000 | 71 | 28,772 | 8,840 | 11,121 | 21,132 | 173 |
| 1930 | 11,821 | 3,794 | 23,635 | 7,592 | 7,901 | 552 | 4,538 | 503 | 78 | 32,219 | 9,737 | 1,010 | 17,081 | 100 |
| 1931 | 11,794 | 3,999 | 26,519 | 11,900 | 9,113 | 637 | 8,643 | 392 | 4,138 | 34,894 | 9,745 | 4,498 | 21,116 | 97 |
| 1932 | 10,589 | 3,581 | 10,354 | 21,093 | 8,862 | 598 | 7,126 | 207 | 143 | 42,315 | 11,640 | 3,418 | 17,835 | 57 |
| 1933 | 9,991 | 1,891 | 36,216 | 8,262 | 11,966 | 588 | 6,009 | 114 | 831 | 42,242 | 11,164 | 2,617 | 16,972 | 86 |
| 1934 | 9,990 | 1,593 | 5,015 | 8,820 | 12,177 | 378 | 8,764 | 102 | 73 | 46,276 | 10,953 | 899 | 14,489 | 51 |
| 1935 | 8,796 | 1,189 | 28,490 | 14,602 | 10,866 | 349 | 8,703 | 529 | 2,054 | 47,659 | 11,069 | 622 | 13,185 | 69 |
| 1936 | 8,987 | 1,124 | 36,548 | 11,417 | 8,324 | 334 | 4,461 | 538 | 34 | 68,969 | 14,445 | 1,396 | 15,786 | 37 |
| 1937 | 9,128 | 1,184 | 12,091 | 10,058 | 12,723 | 299 | 4,653 | 228 | 243 | 88,101 | 17,872 | 4,181 | 16,393 | 55 |
| 1938 | 8,748 | 700 | 34,604 | 8,419 | 11,112 | 312 | 12,232 | 112 | 43 | 37,077* | 12,935 | 447 | 12,969 | 38 |
| 1939 | 8,277 | 543 | 3,653 | 6,121 | 9,103 | 198 | 5,821 | 71 | 184 | 32,874 | 12,810 | 1,546 | 16,875 | 62 |
| 1940 | 8,212 | 386 | 10,496 | 13,569 | 13,046 | 171 | 5,775 | 48 | 67 | 30,718 | 14,639 | 791 | 13,808 | 28 |
| 1941 | 8,459 | 362 | 79,646 | 7,206 | 9,773 | 183 | 7,811 | 118 | 404 | 27,194 | 12,297 | 2,677 | 10,707 | 49 |
| 1942 | 9,145 | 392 | 2,261 | 7,009 | 10,978 | 119 | 9,240 | 411 | 88 | 30,036 | 12,022 | 441 | 10,130 | 52 |
| 1943 | 8,283 | 274 | 23,627 | 9,484 | 9,290 | 123 | 3,678 | 1,406 | 361 | 25,878 | 12,957 | 1,387 | 7,663 | 37 |
| 1944 | 7,229 | 232 | 26,048 | 8,509 | 8,441 | 122 | 2,810 | 1,104 | 1,890 | 23,069 | 14,489 | 266 | 5,981 | 37 |
| 1945 | 6,232 | 254 | 1,870 | 8,347 | 7,905 | 118 | 4,992 | 487 | 547 | 22,690 | 18,009 | 334 | 5,830 | 34 |
| 1946 | 6,386 | 366 | 22,408 | 8,009 | 6,586 | 110 | 2,135 | 246 | 716 | 26,765 | 24,350 | 394 | 3,930 | 38 |
| 1947 | 6,832 | 378 | 7,915 | 3,583 | 11,921 | 75 | 3,224 | 113 | 224 | 26,303 | 22,746 | 268 | 2,517 | 30 |
| 1948 | 7,359 | 167 | 28,960 | 2,420 | 10,214 | 58 | 1,591 | 120 | 703 | 25,366 | 23,422 | 233 | 2,563 | 33 |
| 1949 | 7,344 | 119 | 5,467 | 2,230 | 12,866 | 54 | 4,129 | 104 | 2,446 | 20,489 | 20,309 | 85 | 2,408 | 47 |
| 1950 | 6,518 | 72 | 21,990 | 1,652 | 7,973 | 49 | 1,791 | 142 | 1,064 | 21,795 | 16,784 | 304 | 2,806 | 127 |
| 1951 | 6,331 | 35 | 9,644 | 2,144 | 11,849 | 26 | 1,606 | 110 | 555 | 22,458 | 14,114 | 1,793 | 2,696 | 200 |
| 1952 | 6,021 | 18 | 34,615 | 3,548 | 8,912 | 94 | 1,379 | 144 | 821 | 25,078 | 12,105 | 129 | 2,338 | 280 |
| 1953 | 6,110 | 26 | 5,117 | 1,595 | 12,942 | 63 | 2,733 | 183 | 677 | 25,224 | 12,505 | 475 | 1,902 | 311 |
| 1954 | 5,439 | 23 | 41,037 | 2,143 | 8,775 | 36 | 1,777 | 129 | 844 | 19,412 | 12,379 | 45 | 1,294 | 270 |
| 1955 | 5,064 | 20 | 9,712 | 1,834 | 10,476 | 26 | 1,136 | 108 | 806 | 18,056 | 11,239 | 65 | 1,317 | 220 |
| 1956 | 5,089 | 10 | 21,616 | 2,357 | 11,433 | 25 | 1,113 | 75 | 149 | 17,052 | 10,482 | 85 | 1,649 | 309 |
| 1957 | 5,162 | 12 | 10,226 | 1,657 | 7,287 | 34 | 1,326 | 75 | 57 | 15,485 | 11,479 | 6,092 | 2,218 | 204 |
| 1958 | 4,513 | 9 | 28,272 | 1,944 | 8,403 | 26 | 655 | 36 | 100 | 13,082 | 13,341 | 802 | 2,677 | 165 |

* Figures prior to 1938 were based on positive laboratory findings and included much duplication. Beginning with 1938 duplicates have, as far as possible, been omitted.

## Table 15. Age Specific Death Rates Per 1,000 Population City of New York, 1900-1958

| Age | 1901-'02-'03 | | 1909-'10-'11 | | 1919-'20* | | 1929-'30-'31 | | 1939-'40-'41 | | 1949-'50-'51 | | 1956-'57-'58 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *Males* | *Females* | *Males* | *Females* | *Males* | *Females* | *Males* | *Females* | *Males* | *Females* | *Males* | *Females* | *Males* | *Females* |
| 0-4 | 60.3 | 52.6 | 50.2 | 43.2 | 32.4 | 26.5 | 19.4 | 15.4 | 11.3 | 8.8 | 7.6 | 6.0 | 8.3 | 6.5 |
| 5-9 | 5.8 | 5.2 | 4.2 | 3.9 | 3.8 | 3.1 | 2.5 | 2.0 | 1.0 | 0.8 | 0.6 | 0.5 | 0.7 | 0.4 |
| 10-14 | 2.8 | 2.8 | 2.4 | 2.3 | 2.4 | 2.2 | 1.7 | 1.3 | 0.9 | 0.7 | 0.6 | 0.4 | 0.5 | 0.3 |
| 15-19 | 4.8 | 4.1 | 3.9 | 3.1 | 4.0 | 3.7 | 2.6 | 2.2 | 1.3 | 1.1 | 0.9 | 0.6 | 0.9 | 0.5 |
| 20-24 | 7.3 | 6.0 | 5.3 | 4.6 | 5.8 | 5.4 | 3.4 | 3.2 | 1.7 | 1.6 | 1.3 | 0.9 | 1.2 | 0.7 |
| 25-29 | 9.5 | 8.2 | 6.9 | 5.9 | 6.5 | 6.9 | 3.8 | 3.4 | 2.2 | 2.0 | 1.4 | 1.2 | 1.4 | 1.1 |
| 30-34 | 12.6 | 9.8 | 9.6 | 7.6 | 7.7 | 7.0 | 5.1 | 4.1 | 3.1 | 2.4 | 2.0 | 1.6 | 2.1 | 1.5 |
| 35-39 | 15.1 | 11.6 | 13.0 | 9.3 | 9.2 | 7.3 | 7.0 | 5.0 | 4.5 | 3.2 | 3.2 | 2.2 | 3.1 | 2.1 |
| 40-44 | 19.0 | 13.2 | 16.5 | 11.2 | 10.9 | 9.0 | 10.1 | 6.9 | 7.0 | 4.8 | 5.5 | 3.6 | 4.7 | 3.2 |
| 45-49 | 22.0 | 15.0 | 20.8 | 14.3 | 15.2 | 12.1 | 14.8 | 10.5 | 11.7 | 7.4 | 8.9 | 5.3 | 8.0 | 4.9 |
| 50-54 | 29.2 | 22.8 | 26.5 | 19.1 | 20.6 | 16.3 | 22.0 | 15.0 | 17.2 | 11.5 | 14.5 | 8.3 | 12.8 | 7.2 |
| 55-59 | 38.8 | 31.4 | 37.0 | 28.8 | 30.1 | 24.8 | 32.0 | 23.4 | 25.9 | 17.5 | 22.6 | 12.8 | 21 5 | 11.8 |
| 60-64 | 51.4 | 43.8 | 51.4 | 44.1 | 40.8 | 33.8 | 44.7 | 35.3 | 37.9 | 26.8 | 32.9 | 20.5 | 30.9 | 17.0 |
| 65-69 | 69.9 | 60.5 | 68.5 | 58.9 | 60.1 | 55.0 | 62.0 | 50.2 | 55.0 | 40.8 | 46.2 | 29.7 | 45.1 | 27.2 |
| 70-74 | 95.8 | 85.2 | 89.6 | 81.2 | 85.1 | 79.5 | 84.3 | 73.3 | 78.9 | 62.5 | 68.0 | 49.7 | 67.4 | 47.8 |
| 75-79 | 141.0 | 119.3 | 127.3 | 114.4 | 116.2 | 107.6 | 120.7 | 109.2 | 111.4 | 93.3 | 95.9 | 77.0 | 101.3 | 81.1 |
| 80-84 | 175.9 | 157.9 | 167.4 | 159.6 | 162.6 | 143.6 | 170.9 | 151.2 | 149.8 | 141.5 | 134.0 | 121.2 | 141.3 | 121.0 |
| 85 & Over | 252.3 | 223.0 | 257.4 | 232.3 | 224.8 | 210.2 | 242.8 | 227.5 | 230.5 | 222.2 | 202.8 | 183.8 | 215.8 | 205.4 |

* As Census date is the midpoint of the period presented, only two years are used for 1919-'20 calculation, the Census having been made on Jan. 1, 1920.

## Table 16. Age-Adjusted Death Rates (a) Certain Causes, Per 100,000 Population City of New York, 1900-1957

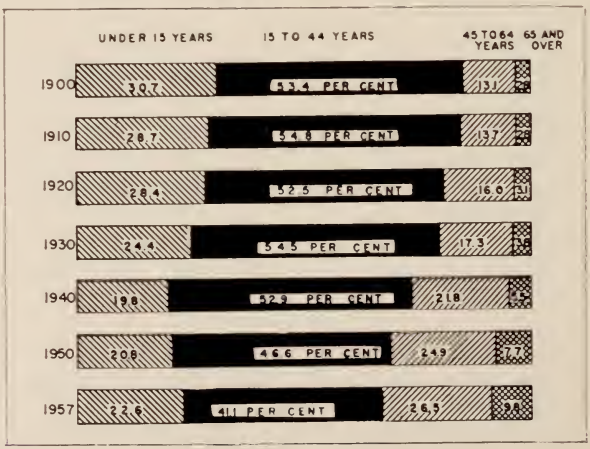
| Cause of Death | 1901-'02-'03 | 1909-'10-'11 | 1919-'20 | 1929-'30-'31 | 1939-'40-'41 | 1949-'50-'51 V—revision—VI | | 1956-'57 |
|---|---|---|---|---|---|---|---|---|
| All causes | 2,075.0 | 1,805.0 | 1,526.0 | 1,219 0 | 893.0 | 687.6 | 687.6 | 639.3 |
| Respiratory tuberculosis | 204.3 | 172.2 | 126.6 | 63.6 | 40.0 | 20.4 | 19.8 | 7.5 |
| Other forms of tuberculosis | 35.4 | 30.3 | 23.7 | 11.3 | 5.0 | 2.0 | 1.9 | 0.5 |
| Influenza and pneumonia | 281.3 | 259.7 | 293.8 | 164.2 | 52.8 | 25.6 | 27.1 | 29.0 |
| Cancer (b) | 83.2 | 94.8 | 101.7 | 116.7 | 125.1 | 124.4 | 127.1 | 128.0 |
| Diabetes | 16.6 | 19.3 | 19.9 | 26.3 | 31.2 | 28.0 | 12.2 | 10.6 |
| Appendicitis | 12.3 | 13.1 | 13 4 | 16.1 | 8.8 | 2.1 | 1.9 | 1.3 |
| Nephritis | 182.7 | 142.9 | 107.5 | 47.4 | 37.9 | 17.6 | 5.6 | 5.4 |
| Diseases of circulatory system | 193.6 | 299.0 | 325.6 | 376.2 | 303.0 | 260 9 | 289 8 | 288 2 |
| Total Degenerative Diseases | 469.6 | 467.5 | 450.4 | 433.1 | 370.5 | 300.8 | 318.4 | 321.8 |
| Total accidents | 94.2 | 82.1 | 70.5 | 71.7 | 47.0 | 33.2 | 31.9 | 26 9 |
| Auto accidents | (c) | (c) | 15.1 | 20.5 | 11.1 | 6.3 | 6 4 | 6 6 |
| Other accidents | (c) | (c) | 55.5 | 51.1 | 35.8 | 26.9 | 25 5 | 20 3 |

(a) For 1901-'02-'03 and 1909-'10-'11 rates are standardized for age and sex; for 1919-20, 1929-'30-'31 and 1939-'40-'41 rates are standardized for age, sex and color. Standard is the population of England and Wales in 1901. Rates were adjusted for sex and color according to the distribution of the population of states of the Death Registration Area of the United States in 1920.

(b) Under cancer in the Sixth Revision are included deaths from Hodgkin's disease, leukemia and aleukemia, and mycosis fungoides to which 643, 1,916 and 22 deaths respectively were assigned in the three-year period 1949-1951. The standardized rate for these 2,581 deaths was 9.1 per 100,000.

(c) Data not available for 1901-1911.

## New York City's Aging Population



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